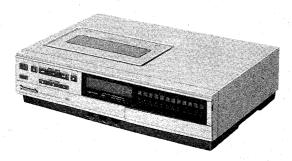
# Service Manual

Video Cassette Recorder

Panasonic VHS Omnivision PV-1230 PV-1222

PV-1225



PV-1230



PV-1222



PV-1225

Vol. 1

Vol. 2

Vol. 3

Vol. 4

Vol. 5

Summary

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Adjustment
Procedures
Electrical
Adjustment
Procedures

**Block Diagrams** 

Schematic
Diagrams
Printed Circuit
Board Diagrams

Exploded Views Replacement Parts List



VHS



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# Service Manu

Vol. 1

Summary

Panasonic V Omnivision PV-1222 PV-1225

Video Cassette Recorder

## **SPECIFICATIONS**

Power Source:

 $120 \text{ V AC } \pm 10\%, 60 \text{ Hz } \pm 0.5\%$ 

Power Consumption:

Approx. 18 watts

Television System:

EIA Standard (525 lines, 60 fields)

NTSC color signal

Video Recording

System: 2 rotary heads, helical scanning system

Luminance: FM azimuth recording Color signal: Converted subcarrier phase

shift recording

Audio Track:

1 track

Tape Format:

Tape width 1/2" (12.7 mm), high density

tape

Tape Speed:

SP mode: 1-5/16 i.p.s. (33.35 mm/s)

LP mode: 21/32 i.p.s. (16.67 mm/s) SLP mode: 7/16 i.p.s. (11.12 mm/s)

Record/Playback Time: 8 HRS. with 160 min. type tape used in

SLP mode

FF/REW Time:

Less than 6 min. with 120 min. type tape

Heads:

Video: 2 rotary heads

Audio/Control: 1 stationary head Erase: 1 full track erase

1 audio track erase

Input Level:

Video: VIDEO IN Jack (RCA type)  $1.0\,\mathrm{Vp}$ -p,  $75\Omega$  unbalanced

Audio: AUDIO IN Jack (RCA type)  $-20\,\mathrm{dB}$ ,  $50\,\mathrm{k}\Omega$  unbalanced

TV Tuners: VHF Input: VHF Ch2-Ch13,

 $75\Omega$  unbalanced

UHF Input: Ch14-Ch83,

 $300\Omega$  balanced

Output Level:

Video: VIDEO OUT Jack (RCA type)

 $1.0\,\mathrm{Vp}\text{-p}$ ,  $75\Omega$  unbalanced

Audio: AUDIO OUT Jack (RCA type)

-6dB,  $600\Omega$  unbalanced

RF Modulated: Ch3/Ch4 switchable, 72dBμ, (Open Voltage)

 $75\Omega$  unbalanced

Video Horizontal

Resolution: Color: more than 230 lines

B/W: more than 230 lines



Audio Frequency

Response: SP mode: 100 Hz~8kHz

(10dB down)

LP mode: 100 Hz ~ 6kHz SLP mode: 150 Hz~5kHz

Signal-to-Noise Ratio: Video: SP mode: better than 41 dB LP mode: better than 41 dB

SLP mode: better than 41 dB (Rohde & Schwarz noise meter)

Audio: SP mode: better than 42dB LP mode: better than 40 dB

SLP mode: better than 40 dB

Operation

Temperature:  $41^{\circ}F-104^{\circ}F$  ( $5^{\circ}C-40^{\circ}C$ )

Operating Humidity:

10% - 75%

Weight:

13.0 lbs. (5.9 kg)

Dimensions:

16-15/16 "(W) × 11-5/8 "(D) × 4-1/4 "(H)

 $(430\,\mathrm{mm}\times295\,\mathrm{mm}\times108\,\mathrm{mm})$ 

Accessories Supplied:

• Remote control unit

VHF connecting cable

•  $300\Omega - 75\Omega$  transformer

• Twin-lead cable

Available Tapes:

1/2" VHS video cassette tapes

NV-T160 Approx. 1073 ft. (327 m), 160,

320, or 480 min

NV-T120 Approx. 810 ft. (247 m), 120, 240,

or 360 min

NV-T60 Approx. 417 ft. (127 m), 60, 120,

or 180 min.

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

# **Panasonic**

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# INTRODUCTION

This Service Manual contains information which will allow the service technician to understand and service the Panasonic VHS recorder Models PV-1230, PV-1222, PV-1225 and the various accessories that complement the deck.

For a detailed technical explanation, please refer to the Training Manual on these models.

Some of the Features incorporated in these models are: soft touch controls, 12 position Electronic Tuner, 2 week/1 program Timer, Wired Remote Control (PV-1230: 5F, PV-1222/PV-1225: 1F), One Touch Record Button (O.T.R), Picture Search in SP, LP and SLP, STILL Picture in SLP, Light Editing, Auto Rewind, Frame Advance in SLP, SLOW Picture in SLP.

These 3 models use a multi-function display indicator which combines indicators for time, tape counter, speed, transport functions, and timer record into one easy to read digital display.

The above features plus the VHS format make the PV-1230/PV-1222/PV-1225 table top VCR's an excellent unit for your enjoyment.

Just slightly ahead of our time...Panasonic

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# **SAFETY PRECAUTIONS**

# **GENERAL GUIDELINES**

- 1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
- 2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shileds are properly installed.
- 3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

# LEAKAGE CURRENT COLD CHECK

- Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between  $1\,\mathrm{M}\Omega$  and  $5.2\,\mathrm{M}\Omega$ .

When the exposed metal does not have a return path to the chassis, the reading must be  $\infty$ .

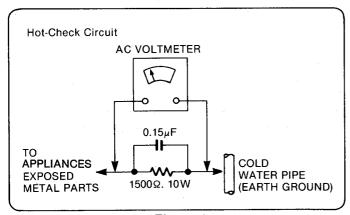


Figure 1

# **LEAKAGE CURRENT HOT CHECK (See figure 1.)**

- 1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
- 2. Connect a  $1.5 k\Omega$ , 10 watts resistor, in parallel with a  $0.15 \mu F$  capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
- 3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
- 4. Check each exposed metallic part, and measure the voltage at each point.
- 5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
- 6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

# **ELECTROSTATICALLY SENSITIVE (ES) DEVICES**

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

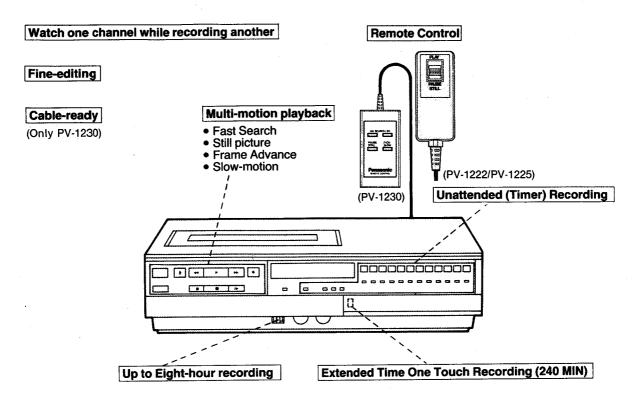
- Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
- 2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
- 3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
- 4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
- 5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
- 6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
- 7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
  CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
- 8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

#### "NOTE to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical".

# **FEATURES**

Your Panasonic VCR has these special features to enhance your viewing enjoyment.



# ► PV-1230/PV-1222/PV-1225 Comparison Chart

		•	
FEATURES	PV-1230	PV-1222	PV-1225
STILL	SLP		
FRAME ADVANCE	SLP		
SLOW	SLP		
SEARCH	SLP (×9)		
PROGRAM	2 week/1 program		
ONE TOUCH RECORDING		4 hours	
TUNER		12 position	
CHNNEL	107ch	82 ch	82 ch
WIRED REMOTE CONTROL	5 functions	1 function	1 function





This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

# **DESCRIPTION OF CONTROLS**

# TOP and FRONT



Pushing this button causes the Tape Counter to return to "0000". By beginning the recording at "0000", subsequent playback will be more convenient.

# • TIMER BUTTON

This button is used to put the VCR in Unattended Recording mode after programming functions have been completed.

When this button is ON, " appears on the Multi Function Display, and you will not be able to operate the unit manually.

• CHANNEL SELECTOR BUT-TONS/INDICATOR LIGHTS

Select the channel ( $2\sim83$ , A  $\sim$  W, A-2, A-1) you wish to view or record by pushing any one of these 12 buttons.

• CASSETTE HOLDER

PUSH BUTTON CONTROLS

(See next page.)

• MULTI FUNCTION DISPLAY (See next page.)

000000000000

CHANNEL NUMBER
 HOLDER
 Pull it out for changing

channel tabs.

• UHF/VHF/CATV TUN-ING CONTROLS (INNER DOOR)

Used to adjust each channel position for desired channel.

• TAPE-SPEED SELEC-TOR (SP/LP/SLP)

Set this selector for the desired tape speed of a recording.

• SLOW TRACKING CON-TROL

If the slow-motion or still picture contains bands of noise, this control may require adjustment.

TRACKING CONTROL

Use this control during regular playback if the image is partially obscured by bands of noise.

• TIMER CONTROLS

Used to set the Timer to make an Unattended Recording when you are away from home, busy or asleep. (AFT) SWITCH (INNER DOOR) Under normal conditions, turn the AFT Switch "ON".

AUTOMATIC FINE TUNING

ONE TOUCH RECORD (O.T.R.) BUTTON (INNER DOOR)

One Touch Recording enables you to do impromptu recordings at any time. Just select the channel and push the ONE TOUCH RECORD Button for 30 minutes to 4 hours of recording.

# **PUSH BUTTON CONTROLS**

## • REWIND/SEARCH • BUTTON

Push this button to rewind tapes. "REW" and "◄" appear on the Multi Function Display. During the playback mode, holding this button down will allow you to view the picture in reverse rapidly. "◄" flashes.

# • EJECT BUTTON

Push this button to insert or remove the cassette. " 
" flashes on the Multi Function Display while the tape is being ejected.

## • POWER BUTTON -

This button is used to turn the VCR on and off. When this button is pushed, counter appears on the Multi Function Display.

# • VCR/TV SELECTOR

VCR: To monitor video recordings or to view playback.

TV: To watch TV or to view another program while recording a different program.

When this is set to VCR, "VCR" appears on the Multi Function Display.

#### PLAY BUTTON

Push this button to play back recorded tapes. "PLAY" and " > " appear on the Multi Function Display.

#### • FAST FORWARD/SEARCH (F) BUTTON

Push this button to move the tape forward rapidly. "FF" and "▶" appear on the Multi Function Display. During the playback mode, holding this button down will allow you to view the picture in the forward direction rapidly. "▶" flashes.

#### RECORD BUTTON

Recording is started by pushing this button and the PLAY Button at the same time. "REC" and "▶" appear on the Multi Function Display.

# **SLOW BUTTON**

While viewing a still picture, push this button to advance the picture one frame at a time. "▶" flashes. During the playback mode, pushing this button will allow you to view a slow-motion picture. "SLOW" appears on the Multi Function Display.

# • STOP BUTTON

1

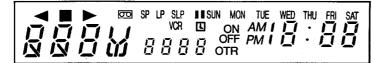
Push this button to stop the tape. "■" appears on the Multi Function Display.

# PAUSE/STILL BUTTON Duch this button to tompo

Ī

Push this button to temporarily stop the tape movement in either the recording or playback mode. During playback a still picture is produced when the pause is used. Push again to release pause. When this button is pushed, "PLAY" and " " appear on the Multi Function Display.

# **MULTI FUNCTION DISPLAY**



# • DIGITAL CLOCK

Normally, the present time is displayed.

## • TAPE COUNTER

Tape counter number is displayed.

# • SPEED INDICATOR "SP" "LP" "SLP"

This shows the tape speed during recording and playback.

# • VCR/TV INDICATOR "VCR"

This indicator appears when the VCR/TV Selector is set to VCR.

# • FUNCTION INDICATOR " 🖁 🖁 🖁 🖁 👑 "

This shows the mode of VCR (EJECT, PLAY, REC, REW, FF, PAUSE, STILL, SEARCH, STOP, FRAME ADVANCE, SLOW).

# • DEW INDICATOR " ♂ ₽ " "

This indicator appears if excessive moisture condenses in the unit. If the DEW Indicator is ON, the unit will not operate. If this happens, leave the VCR ON and let it remain at room temperature until this indicator goes off.

# • TIMER INDICATOR " [] '

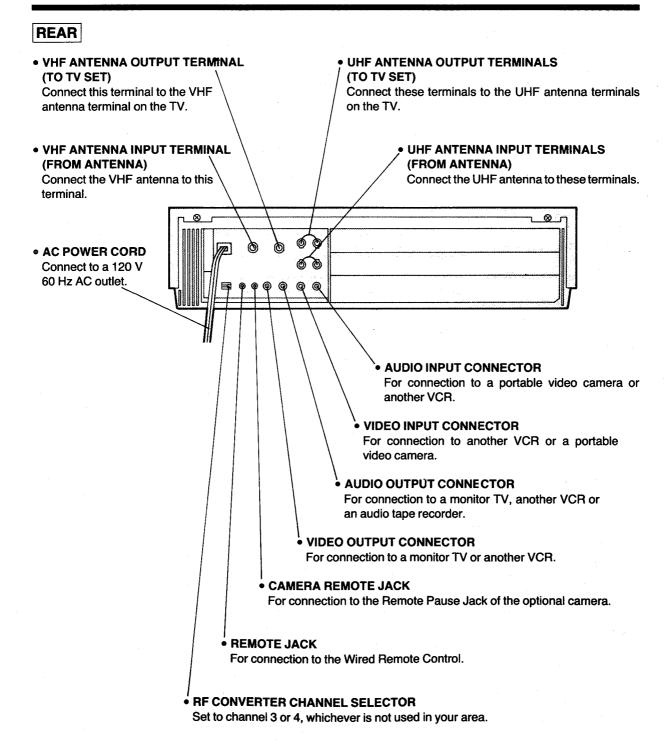
When TIMER Button is set to ON, this indicator appears and you will not be able to operate the unit manually.

# • O.T.R. INDICATOR "OTR"

When OTR is set, this indicator appears.

## • CASSETTE-IN INDICATOR " @ "

This indicator shows the condition of the cassette tape in the unit.



In some cases, the product may differ slightly from illustrations or photographs.

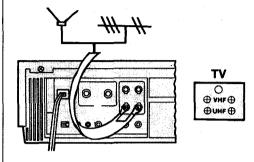
Please be assured that this difference is not due to mistake but to ongoing product improvement.

# **UHF AND CABLE CONNECTIONS**

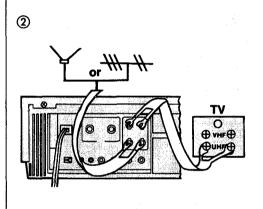
If you receive UHF TV broadcasts, connect TV antennas to the VCR and TV as shown below.

# **UHF CONNECTION**

1 Indoor or outdoor UHF antenna



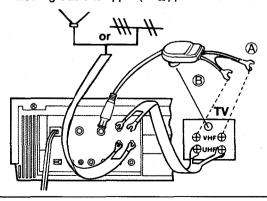
 Remove the UHF antenna twin lead wires from the back of your TV, and attach these wires to the UHF IN terminals of the VCR.



- Attach the Twin Lead (flat) Cable (supplied) to the UHF OUT terminals of the VCR.
- Attach the other end to the UHF terminals of the TV.

If you receive only UHF Channels, you must also add one of the following two connections (a) or (b) between your VCR and TV. This connection is necessary to view tapes in playback and to use your TV as a monitor.

- If you have only screw type VHF terminals on your TV, use connection (A). If using connection (A), set the switch of the VHF Connecting Cable to lower (300 Ω) position.
- If you have a VHF terminal on your TV, use connection (B). If using connection (B), set the switch of the VHF Connecting Cable to upper (75 Ω) position.

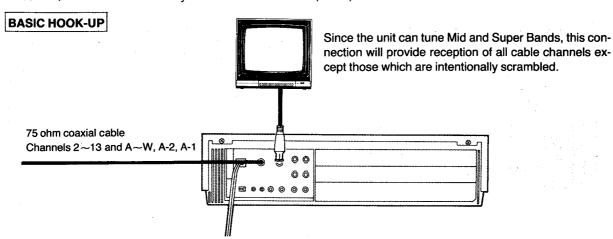




- Attach the VHF Connecting Cable (supplied) to the VHF OUT terminal of the VCR.

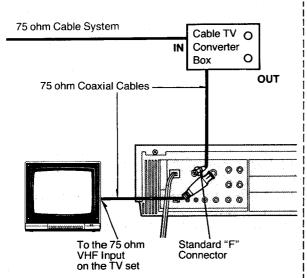
# CABLE-VCR-TV (FOR CATV/PAY CHANNELS RECORDING/PLAYBACK)

The unit has an extended range, and can tune the Mid-Band and Super-Band cable channels. (Channels A $\sim$ W, A-2, A-1). Also, the unit can tune to any of the 70 UHF channels (14-83). Refer to VCR FINE TUNING.

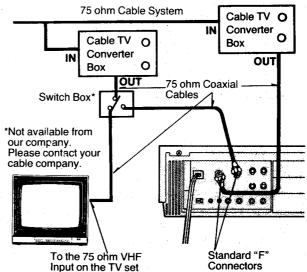


However, if you subscribe to a special channel which is scrambled-you probably have a descrambler box for proper reception. The Unit by itself cannot properly receive a scrambled program since it does not contain a descrambler. In order for the Unit to properly receive a scrambled program, your existing descrambler must be used. There are two commonly used methods of connection in this case.

# TYPICAL CABLE SYSTEM HOOK-UPS WITH CABLE CONVERTER/DESCRAMBLER BOXES



The above cable hook-up allows VCR-TV functions except for viewing one channel while recording another.



The above cable hook-up allows VCR-TV functions, including viewing one channel while recording another, but if requires two cable TV Converter Boxes and one Switch Box.

Since the PV-1230 has an extended range of tuning, tuning-programming of non-scrambled Mid-Band and Super-Band TV programs is possible. When a cable converter or descrambler box is connected to the unit, all Unattended Recording functions will continue to operate with the exception of changing channels automatically. Channel selection will have to be performed with the cable converter. Unattended Recording is therefore limited to one channel at any given time.

# **GLOSSARY OF TERMS**

#### ACC

Automatic Color Control used to maintain an overall constant color signal level in the color circuits.

#### **ACK**

Automatic Color Killer.

#### **Adjacent Track**

This is the name of the video track to the immediate left or right of the track of concern.

#### AFC

Automatic Frequency Control used to phase-lock the color circuits to either the recording or playback color signal, in order to achieve a stable color signal.

#### **AFT**

Automatic Fine Tuning...This is a special circuit found in most recent TV sets which makes the local oscillator of the TV tuner follow the channel of concern in order to produce a stable IF frequency. In other words, if for any reason the TV station being received changes frequency, the AFT circuit will automatically compensate so that no interference will be seen on the screen, i.e., no manual fine tuning is necessary.

#### AGC

Automatic Gain Control used to maintain an overall constant picture level in the luminance circuits.

#### **APC**

Automatic Phase Control used to help phase lock the color circuits to either the recording or playback color signal in order to achieve a stable color signal.

#### **Azimuth**

A term used to describe the left to right tilt of the gap of a recording head, if it could be viewed straight on.

## **Balanced Modulator**

A circuit so designed to give as an output the frequency sum or frequency difference of its two input signals. Any special characteristics of one of the input signals will be present in the output signal.

#### Beats

A term used to described the unwanted signals produced when two original signals are allowed to be mixed together.

# **Bipolar PG**

Pulse Generator signals that have both positive and negative excursions.

#### Burst

A short time occurence (8 to 10 cycles) of the 3.58 MHz subcarrier signal, appearing right after horizontal sync but centered on the blanking portion of the video waveform. Burst is used to keep the color oscillator of a TV receiver locked to the broadcast station.

#### B/W

Abbreviation for Black and White.

С

Capacitor.

#### C Signal

The color portion of a video signal.

#### Capstan

A small rotating metal dowel which drives the recording tape to assure positive tape movement.

#### Chroma

The color portion of a video signal.

#### Chrominance

The color portion of a video signal.

#### Clamp

The process of giving an AC signal a specific DC level.

#### **Control Signal**

A special signal recorded onto the video tape which is used during playback as a reference for the servo circuits.

#### **Converted Subcarrier**

This is the process of frequency shifting the color 3.58MHz subcarrier and its sidebands down to 629kHz.

#### Crosstalk

The name given to the unwanted signals obtained when a video head picks up information from an adjacent track.

#### CUE

To scan the playback picture at a faster than normal speed in the Forward direction.

D

Diode.

DL

Delay Line.

# Dark Clip

After emphasis, the negative going spikes (undershoot) of a video signal may be too large in amplitude for safe FM modulation. A dark clip circuit is used to cut off these spikes at an adjustable level.

#### DDC

Direct Drive Cylinder...as used in VHS, this means that the video heads are driven by a self-contained brushless DC motor using no belts or gears. DD cylinders produce pictures with better stability.

# Delta Factor (Af)

A term used to indicate that a playback signal off the video tape has some jitter or "wow and flutter".  $\Delta f$ , or "a change in frequency" means that the color signal off the tape is not a stable frequency of 629kHz, but rather a signal whose frequency at any instant is some small amount above or below 629kHz.

#### Deviation

A term used to describe how far the FM carrier swings when it is modulated. In VHS the upper limit is 4.4MHz.

#### **Dew Detector**

A variable resistor whose resistance value depends upon the ambient humidity.

#### Dihedral

A term used to describe the relative position between the two video heads as they are mounted in the head cylinder. Perfect dihedral means that the tips of the heads are exactly 180° apart.

#### **Dropout**

A momentary absence of FM or color signal off the tape, whether due to uneven oxide or a coating of dust on the tape or video heads.

#### **Duty Cycle**

In describing a rectangular waveform, the "duty" refers to the percentage of off time and on time for one complete cycle. 50-50 means that there are equal periods of off time and on time for one cycle and this would be a square wave.

Electronics to Electronics...this is the picture viewed on the TV set when a recording is being made. This picture goes through some but not all of the circuits of the recorder and is used to test the operation of said circuits.

Shortened form of "Equalization", used in the audio circuits.

#### **Emphasis**

The process of boosting the level of the high frequency portions of the video signal.

Frequency Generator used in the servo circuits.

# FL

Filter.

## FM Signal

The luminance portion of the video signal is used to control the frequency of astable multivibrator. The output of this multivibrator is a frequency modulated (FM) signal shifting from 3.4MHz to 4.4MHz (plus sidebands).

One half of a television picture. A field consists of 262.5 horizontal scanning lines across the picture tube. Two fields are necessary to complete a fully scanned TV picture (frame). First, one field is "sprayed" on the picture tube, starting at the top of the tube with Line 1, and ending at the bottom with Line 262.5. Then, the next field begins at the top of the tube again with Line 262.5 and ends at the bottom with Line 525. The lines of the second field lie in-between the lines of the first field. This property of falling in-between lines is called "interlacing". The two sweeps of the picture tube, or two fields make up one complete TV picture of "frame". Frame repetition is 30 Hz, therefore field repetition is 60 Hz.

#### Flagwaving

This is the term used to describe a TV sets ability to accept unstable playback pictures from a video tape recorder. All home VTR's have some degree of playback instability. A TV set with a long horizontal AFC time constant may not recover from the VTR's instability before the active picture is being scanned. This can cause a bending or flapping from side to side of the top inch or so of the screen. This movement is called "flagwaving".

#### Frame

One complete TV picture. See "Field".

#### Gate

A circuit which will deliver an output only when a specific combination of its inputs are present. For use in analog or digital applications.

#### **Guard Band**

This is the space between video tracks on the video tape in the SP mode. Guard bands contain no information.

An external magnetic field causes current to flow in this type of device.

## HD

Horizontal Drive signal.

## **Head Cylinder**

A cylindrical piece of metal which houses the video heads. The tips of the heads protrude slightly from the surface of the cylinder so that they may scan the tape as the cylinder spins.

## **Head Switching**

The action of turning off during playback, the video head which is not in contact with the video tape. A particular video head will be turned off 30 times per second. This is done so that the head which is not scanning the tape, and therefore not delivering a good signal, cannot contribute any noise to the playback signal.

#### **Head Switching Pulse**

The signal which is applied to the Head Amplifier to perform head switching. This is a square wave at 30 Hz, with a 50-50 duty cycle.

#### Helical

A word used to describe a general type of VTR in which the tape wraps around the video head cylinder in the shape of a 3-dimensional spiral, or "helix". The video tracks are recorded as a series of slanted lines.

IC

Integrated Circuit.

#### Interchangeability

A term used to describe how well a particular VTR will play back a tape recorded on another VTR of the same type. Good interchangeability indicates good playback.

#### Interlacing

The property of the scan lines of two television fields to lie inbetween each other. See "Field".

#### Interleaving

A term used to indicate that the harmonics of the chrominance signal lie in-between the harmonics of the luminance portion of the video signal as it is viewed on a spectrum analyzer. This means that the color information of a video signal does not interfere with, although it is broadcast at the same time as, the luminance information.

Also, signals which have this interleaving property are not readily seen on a TV screen, because of their virtual cancellation characteristics.

Interleaving signals (fi) must have the following frequency rela-

$$fi = (\frac{2n+1}{2}) \times fH$$
 (n = 0, 1, 2, 3, 4.....)  
 $fH = 15,734 Hz$  (H sync frequency)

#### **Jitter**

The name of the effect on the playback picture if a VTR has too much "wow and flutter". The picture appears to have a rapid shaking movement.

Coil.

# Luminance

This is the portion of video signal which contains the sync and B/W information.

Monostable Multi-Vibrator...Usually an IC device which gives a logic high or low output with a variable duration upon receipt of an input pulse or transition.

#### Non-Linear Emphasis

This is similar to regular emphasis with the difference that small level high frequency portions of the signal are given more of a boost than higher level high frequency portions.

#### NTSC

The National Television Systems Committee. These four letters identify the United States color television standard.

#### O.T.R.

One Touch Recording (O.T.R.) enables you to do impromptu timer recordings at any time. When you have to go out for urgent matters or you are going to sleep, this function is very useful. Just select the channel and push the O.T.R. Button for 30 minutes to 2 hours of recordings. After recording, the VCR will be turned off automatically.

#### PG

Pulse Generator used in the servo circuits.

Q

A term used to describe the graphic response of a filter or tuned amplifier.

R

Resistor.

#### Review

To scan the playback picture at a faster than normal speed in the Reverse direction.

RF

Radio Frequencies.

# **Rotary Chroma**

The name of the process used in VHS to change the phase of the chrominance signal at a rate of 15,734 (same as H sync frequency) times per second.

# **Rotary Transformer**

A device used to magnetically couple RF signals to and from the spinning video heads, thus eliminating the need for brushes.

# Sample and Hold

A process used in comparator circuits by which the value of a particular signal is measured at a specific moment in time...then this value is stored for later use.

#### Search

To scan the playback picture at a faster than normal speed in either the forward or reverse direction.

#### Servo

Short for Servo mechanism. This is an electro-mchanical device whose mechanical operation (for instance motor speed) constantly being measured and regulated so that it closely matches or follows an external reference.

# Skew

Another way of saying Tension Error. Skew is actually the change of size or shape of the video tracks on the tape from the time of recording to the time of playback. This can occur as a result of poor tension regulation by the VTR, or by ambient conditions which affect the tape.

#### Subcarrier

The name of the 3.58MHz continuous wave signal used to carry color information.

#### SS

Slow and Still.

Т

Transformer.

TP

Test Point.

TR

Transistor.

#### **Tension Error**

See "Skew".

#### **Time Base Stability**

A term used to describe how closely the playback video signal from a VTR matches an external reference video signal...in regard to sync timing rather than picture content.

#### **Tracking**

This is the action of the spinning video heads during playback when they accurately track across the video RF information laid down during recording. Good tracking indicates that the heads are positioning themselves correctly, and are picking up a strong RF signal. Poor tracking indicates that the heads are off track, and picking up low level RF signal or noise.

#### VCO

Voltage Controlled Oscillator...An oscillator whose frequency of oscillation is governed by an external voltage.

## Video Head

This is the electro-magnet used to develop magnetic flux which will put RF information on the tape. In VHS, two video heads are mounted in a rotating cylinder around which the video tape is wrapped. As the cylinder spins, each video head is allowed to alternately scan the tape.

#### Video Track

The name of the RF information laid down during recording, as a particular video head scans across the tape.

#### VHS

Video Home System.

#### **VTR**

Video Tape Recorder.

Video to Video...or...the actual playback picture produced from a tape during playback.

#### VXC

Voltage Controlled Crystal Oscillator...Similar to VCO except that a quartz crystal is sued as a reference which can be varied.

# White Clip

After emphasis, the positive going spikes (overshoot) of the video signal may be too large for safe FM modulation. A white clip circuit is used to cut off these spikes at an adjustable level.

# XTAL

Abbreviation for crystal.

#### Y Signal

The B/W portion of a video signal containing B/W information and sync.

# Service Man

Vol. 2

Mechanical Adjustment **Procedures** Electrical Adjustment **Procedures** 

Panasonic VHS Omnivision PV-1230 PV-1222

PV-1225

Video Cassette Recorder

# **SPECIFICATIONS**

Power Source:

120V AC  $\pm 10\%$ , 60Hz  $\pm 0.5\%$ 

Power Consumption:

Approx. 18 watts

Television System:

EIA Standard (525 lines, 60 fields)

NTSC color signal

Video Recording

System: 2 rotary heads, helical scanning system

Luminance: FM azimuth recording Color signal: Converted subcarrier phase

shift recording

Audio Track:

1 track

Tape Format:

tape

Tape width 1/2" (12.7 mm), high density

Tape Speed:

SP mode: 1-5/16 i.p.s. (33.35 mm/s) LP mode: 21/32 i.p.s. (16.67 mm/s) SLP mode: 7/16 i.p.s. (11.12 mm/s)

Record/Playback Time: 8 HRS. with 160 min. type tape used in

SLP mode

FF/REW Time:

Less than 6 min. with 120 min. type tape

Heads:

Video: 2 rotary heads

Audio/Control: 1 stationary head

Erase: 1 full track erase

1 audio track erase

Input Level:

Output Level:

Video: VIDEO IN Jack (RCA type)

 $1.0\,\mathrm{Vp}$ -p,  $75\Omega$  unbalanced

Audio: AUDIO IN Jack (RCA type)

 $-20\,\mathrm{dB}$ ,  $50\,\mathrm{k}\Omega$  unbalanced

TV Tuners: VHF Input: VHF Ch2-Ch13,

 $75\Omega$  unbalanced

UHF Input: Ch14-Ch83,

300Ω balanced

Video: VIDEO OUT Jack (RCA type)

 $1.0\,\mathrm{Vp}\text{-p}$ ,  $75\Omega$  unbalanced

Audio: AUDIO OUT Jack (RCA type)

 $-6\,\mathrm{dB}$ ,  $600\Omega$  unbalanced

RF Modulated: Ch3/Ch4 switchable,

72 dB µ, (Open Voltage)  $75\Omega$  unbalanced

Video Horizontal

Resolution: Color: more than 230 lines

B/W: more than 230 lines

**Audio Frequency** 

Response: SP mode: 100 Hz ~ 8kHz

(10dB down)

LP mode:  $100 \, \text{Hz} \sim 6 \, \text{kHz}$ SLP mode: 150 Hz~5kHz

Signal-to-Noise Ratio: Video: SP mode: better than 41 dB

LP mode: better than 41dB

SLP mode: better than 41 dB

(Rohde & Schwarz noise meter)

Audio: SP mode: better than 42dB

LP mode: better than 40dB

SLP mode: better than 40dB

Operation

Temperature: 41°F-104°F (5°C-40°C)

Operating Humidity:

10% - 75%

Weight:

13.0 lbs. (5.9 kg)

Dimensions:

16-15/16 "(W)  $\times 11-5/8$  "(D)  $\times 4-1/4$  "(H)

 $(430 \,\mathrm{mm} \times 295 \,\mathrm{mm} \times 108 \,\mathrm{mm})$ 

Accessories Supplied:

• Remote control unit

• VHF connecting cable •  $300\Omega - 75\Omega$  transformer

• Twin-lead cable

Available Tapes:

1/2" VHS video cassette tapes

NV-T160 Approx. 1073ft. (327m), 160,

320, or 480 min

NV-T120 Approx. 810 ft. (247 m), 120, 240,

or 360 min

NV-T60 Approx. 417 ft. (127 m), 60, 120,

or 180 min.

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

anasonic

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# ■ IMPORTANT SAFETY NOTICE I

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

# **SAFETY PRECAUTIONS**

# **GENERAL GUIDELINES**

- 1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
- 2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
- 3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

## LEAKAGE CURRENT COLD CHECK

- 1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between  $1\text{M}\Omega$  and  $5.2\text{M}\Omega$ . When the exposed metal does not have a return path to the chassis, the reading must be  $\infty$ .

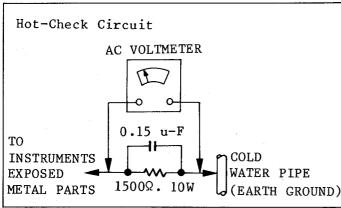


Figure 1

# **LEAKAGE CURRENT HOT CHECK (See figure 1.)**

- 1. Plug the AC cord directly into the AC outlet. DO not use an isolation transformer for this check.
- 2. Connect a  $1.5k\Omega$ , 10 watts resistor, in parallel with a 0.15 u-F capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
- 3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
- 4. Check each exposed metallic part, and measure the voltage at each point.
- 5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
- 6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exced 1/2 milliamp. In case a measrement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

# MECHANICAL ADJUSTMENT PROCEDURES

## DISASSEMBLY OF CABINET PARTS

## 1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly steps of the cabinet parts and the Bottom P.C. Boards in order to find the item(s) necessary for servicing. When reassembling, perform the step(s) in the reverse order. Bottom Plate can be removed separately.

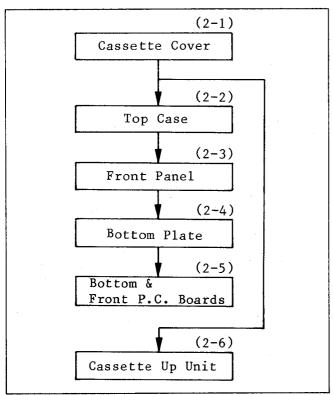


Fig. Ml Disassembly Flow Chart

#### Note:

- 1. When removing the front panel, work with care so as not to break the locking portions of the panel.
- The 2 screws indicated by arrow marks on the bottom plate should be removed to remove the top case.

## 2. DETAILED DISASSEMBLY METHOD

# 2-1. Removal of the Cassette Cover

Press the eject button to raise the cassette up unit, remove 2 screws (A) and tilt the cassette cover upward to unlock the locking tabs.

Then remove the cassette cover.

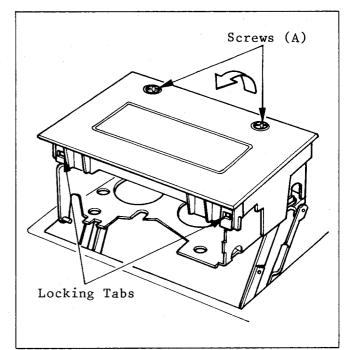


Fig. M2 Removal of Cassette Cover

# 2-2. Removal of the Top Case

Place the deck so that the left side faces down, hold the deck with your hand and remove 2 screws (B).

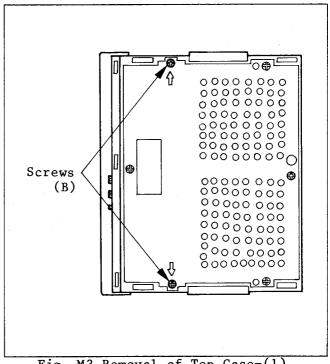


Fig. M3 Removal of Top Case-(1)

Lower the cassette up unit, remove 2 screws (C).

Then pull the top case toward the back and then carefully lift the front portion to remove.

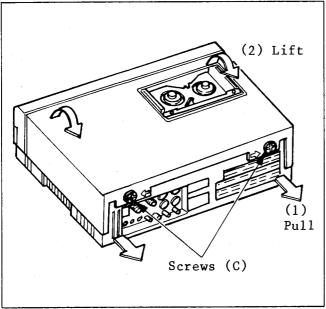


Fig. M4 Removal of Top Case -(2)

# 2-3. Removal of the Front Panel

Release 4 locking tabs. Then hold both right and left top portions of the panel and turn it towards the front of deck to remove.

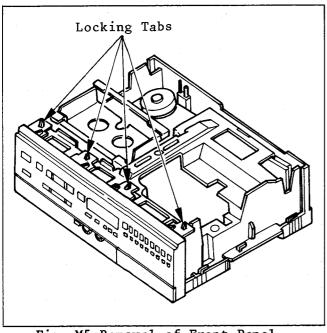


Fig. M5 Removal of Front Panel

# 2-4. Removal of the Bottom Plate

Place the deck so that the left side faces down, hold the deck with your hand and remove 4 screws (D).

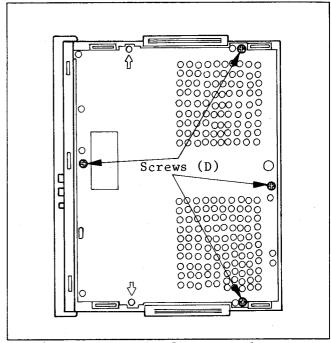


Fig. M6 Removal of Bottom Plate

# 2-5. Opening of the Bottom & Front P.C. Boards

Place the deck so that the left side faces down, hold the deck with your hand and remove 3 red screws (E).

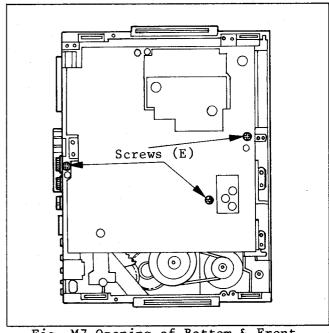


Fig. M7 Opening of Bottom & Front P.C. Boards-(1)

Next release the 6 locking tabs of front P.C. Boards.

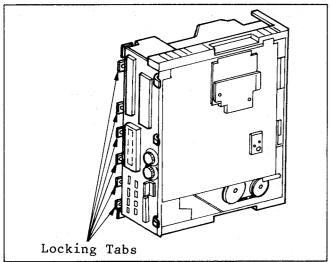


Fig. M8 Opening of Bottom & Front P.C. Boards-(2)

Then carefully open the Bottom & Front P.C. Boards.

2-6. Removal of the Cassette Up Unit

Raise the Cassette Up Unit by unlocking Lock Lever and remove 4 screws (F).

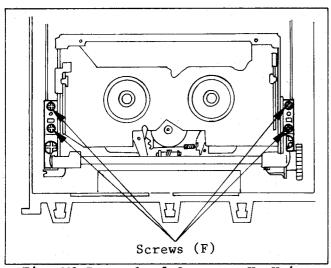


Fig. M9 Removal of Cassette Up Unit

# PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT

- 1. Position the video head to permit access for cleaning and hold the upper cylinder to keep it from turning while cleaning.
- 2. Gently rub the video head in direction of tape travel with Head Cleaning Stick (VFK27) moistened with freon TF.
- 3. Repeat for the other video head.

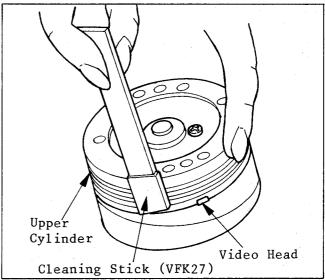


Fig. M10 Head Cleaning

# Note:

- 1. Do not rub vertically.
- 2. Do not apply any pressure to head. If contaminant is not easily removed, continued gentle wiping will usually remove the substance.

# ADJUSTMENT PROCEDURES

## 1. REPLACEMENT OF UPPER CYLINDER UNIT

Work with extreme care when removing or replacing the Upper Cylinder Unit. Do not touch video heads during servicing.

- 1. Unsolder the 4 wires which are color coded to matching wires on the head relay board.
- Remove the 2 screws and gently lift the Upper Cylinder Unit from the shaft.

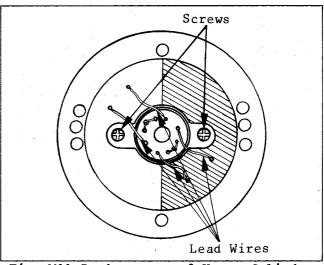


Fig. Mll Replacement of Upper Cylinder Unit-(1)

3. Before reinstalling a new unit, clean the D.D. Cylinder shaft and the surface that it engages with on the Upper Cylinder with a soft cloth dampened with Freon TF.

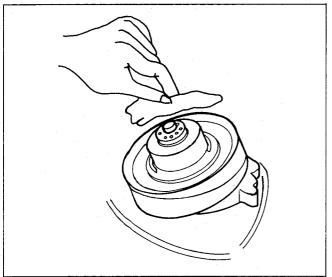


Fig. M12 Replacement of Upper Cylinder Unit-(2)

- 4. Install new unit according to the color code of the head relay board. Tighten the 2 screws and resolder the 4 wires to the head relay board.
- Clean the Upper Cylinder Head with a deerskin swab saturated with Freon TF.

## Note:

Upon completion of replacement, confirm performance. And if required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

# 2. REPLACEMENT OF D.D. CYLINDER UNIT

Work with extreme care when removing or replacing the D.D. Cylinder Unit. Do not touch video heads during servicing.

- 1. Remove the 2 screws and shield case on connectors.
- 2. Disconnect 2 connectors (P1501 and P1502) from the D.D. Cylinder Unit.
- 3. Remove screw (A) and discharge angle.
- 4. Remove the D.D. Cylinder Unit by removing 3 screws (B).

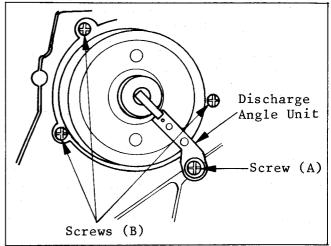


Fig. M13 Replacement of D.D. Cylinder Unit-(1)

#### Note:

Since there is very little clearance between D.D. Cylinder Unit and chassis, remove the D.D. Cylinder Unit gently and carefully.

- 5. Remove the Upper Cylinder Unit from the D.D. Cylinder and reinstall it on new one. To perform this step, refer to "REPLACEMENT OF UPPER CYLINDER UNIT" section.
- 6. Reinstall the new D.D. Cylinder Unit and connect P1501 and P1502. Reinstall the shield case and Discharge Angle Unit.

# Note:

1. When reinstalling the New D.D. Cylinder Unit, fit the New D.D. Cylinder Unit to the chassis by turning it counterclockwise.

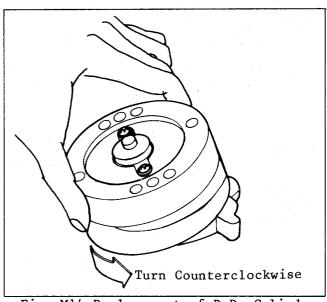


Fig. M14 Replacement of D.D. Cylinder
Unit-(2)

- 2. Upon completion of replacement, confirm performance.

  If any further maintenance is required, perform "TAPE INTERCHANGE-ABILITY ADJUSTMENT".
- 3. CONFIRMATION OF DISCHARGE ANGLE UNIT INSTALLATION POSITION

Check to see if the Discharge Angle Unit is correctly set in a position as close to 1 mm as possible to the UP side from the center of the cylinder shaft as show in Fig. M15.

#### Note:

Never install the Discharge Angle Unit to any position to the down side from the center of the cylinder shaft, but always within a maximum of 1 mm to the UP side of the center of this shaft.

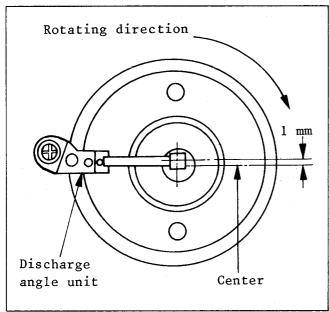


Fig. M15 Confirmation of Discharge Angle Unit Position

# 4. ADJUSTMENT OF V-STOPPERS

- - Remove the D.D. Cylinder Unit from chassis. (Upper Cylinder Unit does not need removal from the D.D. Cylinder Unit.) Refer to "REPLACEMENT OF D.D. CYLINDER UNIT" section.

2. Loosen 4 screws (A) and install the fixture.

Push the V-stoppers spugly against

Push the V-stoppers snugly against the pins and tighten the 4 screws(A).

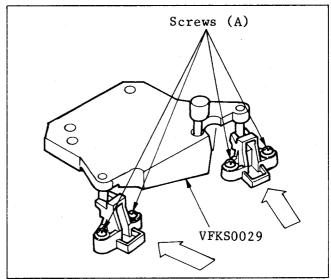


Fig. M16 Adjustment of V-Stoppers

3. Upon completion of the adjustment, simulate loading completion to ensure that posts smoothly fit the V-Stoppers. Then reinstall the D.D. Cylinder Unit.

# 5. POSITION ADJUSTMENT OF TENSION POST

- \* Equipment Required:
  Tension Post Adjustment Plate
  .....(VFKS0002)
  Fine Adjustment Screwdriver
  .....(VFKS0136)
- 1. Remove the Cassette Cover, Top Case, and Cassette Up Unit.
- 2. Push the Lock Lever down. Cover the takeup and supply photo transistor with black tape. Push the PLAY button to complete loading, then disconnect the AC plug.
- 3. Loosen the screw slightly so that the tension band bracket can be moved in accordance with the procedure in item 5, but does not move when the screwdriver is removed.
- 4. Place the adjustment plate.
- 5. Insert the fine adjustment screwdriver into the hole and move the tension band bracket right or left so that the tension post just touches the fixture.

- 6. Remove the adjustment plate and tighten the screw.
- 7. Replace the adjustment plate. Confirm that the tension post just touches the fixture.
- 8. Remove the black tapes that cover the photo transistors.

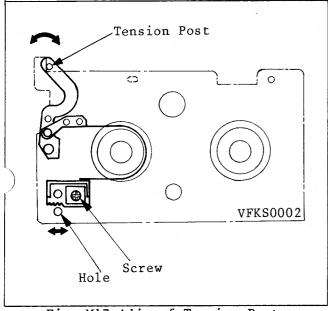


Fig. M17 Adj. of Tension Post

- 6. MEASUREMENT AND ADJUSTMENT OF BACK TENSION
- A: Measurement Procedure
- \* Equipment Required:

  Back Tension Meter (Tentelometer,

  Model T2-H7-UM, Purchase Locally)

  VHS Cassette Tape (120 Minute Tape)
- \* Specification: 25 30g
- 1. Remove the Cassette Cover and Top Case.
- 2. Pull the erase head in the direction indicated by the arrow and hold it with adhesive tape.
- 3. Playback the cassette tape from its beginning and wait until tape running has stabilized. (for approx. 10 to 20 seconds)
- 4. Insert tension meter in tape path and confirm reading.
- 5. If the reading is out of specification, perform the adjustment procedure.

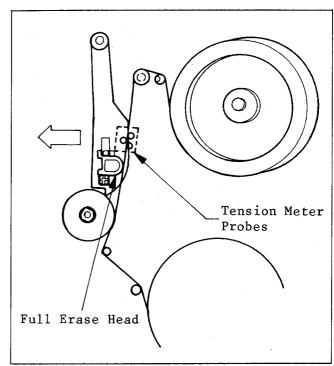


Fig. M18 Measurement of Back Tension

#### Note:

- Make sure that the three probes of the meter are all in solid contact with tape, but out of contact with any other parts while measuring.
- 2. It is recommended that measurements be taken three times as tension meter is very sensitive.
- B: Adjustment Procedure
- \* Equipment Required: Fine Adjustment Screwdriver...(VFK0136)
  - 1. Loosen screw (A) and insert the fine adjustment screwdriver into the hole (B).
- 2. Move the adjustment plate as indicated by the arrow to obtain the specified tension.
  Turn the driver clockwise to loosen tension, counterclockwise to tighten tension.
- 3. Tighten screw (A) and verify tension with the meter once again.
- 4. Reinstall the cabinet parts.

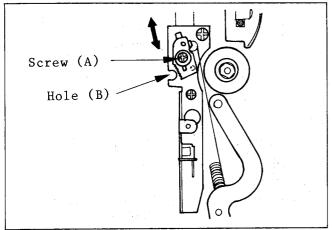


Fig. M19 Adj. of Back Tension

#### Note:

Upon completion of adjustment, remove the adhesive tape holding the erase head.

# 7. CONFIRMATION OF BRAKE TORQUE

- \* Equipment Required:
  Dial Torque Gauge.....(VFK0133)
  Adaptor for Gauge.....(VFK0134)
  - 1. Remove the Cassette Cover and Top Case.
  - 2. Attach the adaptor to the torque gauge and place the deck in STOP mode.
  - 3. Place the torque gauge on the reel table. The weight of gauge should not rest on the reel table.

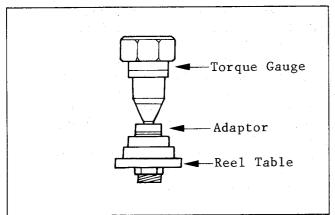


Fig. M20 Confirmation of Brake Torque-(1)

4. Turn torque gauge in either direction indicated in the Fig. M21 and read the gauge when the brake begins slipping.

#### Note:

If proper brake torque can not be obtained, clean the rotating surface of reel table with a soft cloth and recheck torque before replacing brakes.

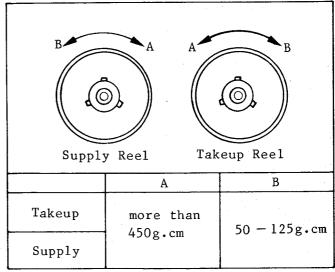


Fig. M21 Confirmation of Brake Torque-(2)

# 8. CONFIRMATION OF TAKEUP TORQUE

- \* Equipment Requird:
  Dial Torque Gauge ...... (VFK0133)
  Adaptor for Gauge ...... (VFK0134)
- \* Specifications:
  in PLAY mode ...... 100 180g.cm
  in F.F. mode ..... more than 400g.cm
  in REW mode ..... more than 400g.cm
  - 1. Remove the Cassette Cover, Top Case and Front Panel.
  - 2. Attach the adaptor to the torque gauge.
- 3. Connect a jumper from TP6303 to TP6304, and cover the takeup and supply photo transistors with black tape.

Lower the cassette up unit and turn power switch on.

4. Place the torque gauge on the takeup reel table, push the play button and read torque on the gauge.

Repeat above procedures in F.F. mode after pushing the F.F. button.

# Note:

While measuring, the weight of the gauge should not rest on the reel table.

- 5. Set the torque gauge on the supply reel table, press the rewind button to check REW mode torque.
- 6. Remove the jumper and the black tape that covered the photo transistors.

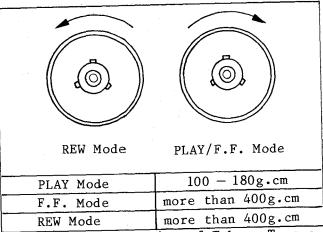


Fig. M22 Confirmation of Takeup Torque

- 9. POSITION ADJUSTMENT OF SAFETY TAB SWITCH
- \* Equipment Required: Cassette Holder Fixture .... VFKS0004
  - Remove the Cassette Cover, Top Case and Cassette Up Unit.
  - 2. Slightly loosen the screws (A) and (B).
  - 3. Place the fixture in place over the reel tables.
  - 4. Push Safety Tab Switch Angle with pushing down the Safety Tab Switch Lever with something like a screwdriver until Safety Tab Switch just turns ON. And tighten the screws (A) and (B).

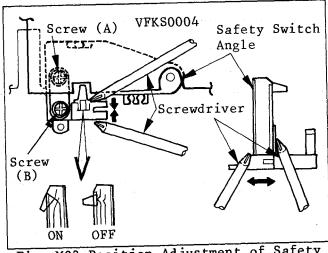


Fig. M23 Position Adjustment of Safety
Tab Switch-(1)

#### Note

- 1. Don't adjust with upward switch lever.
- 2. Confirm that the Safety Switch correctly turns ON and OFF using video cassettes with and without the Safety Tab.

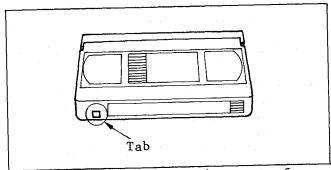


Fig. M24 Position Adjustment of Safety Tab Switch-(2)

# 10. HEIGHT ADJUSTMENT OF REEL TABLES

- \* Equipment Required:
  Post Adjustment Plate ..... (VFKS0010)
  Reel Table Height Fixture .. (VFKS0009)
- \* Specification ..... 0 (+- 0.1) mm
  - 1. Remove the Cassette Up Unit.
- 2. Place the post adjustment plate over the reels, and put the fixture on it. Set the fixture to zero "0" making sure that the scraper of fixture touches the cut-out portion of the plate.

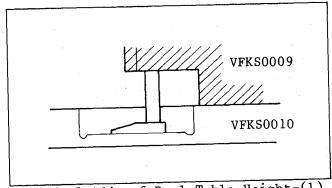


Fig. M25 Adj. of Reel Table Height-(1)

3. Then measure the top portion of reel table and confirm the difference against the result of the measurement taken in the above step. Do same for the other reel table.

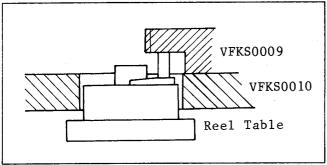


Fig. M26 Adj. of Reel Table Height-(2)

- 4. If the difference is more than 0.1mm (higher or lower), adjust the height of reel table to obtain the specified height.
- 5. For adjustment, change the poly slider washer located under the reel table. (The washer is available in sizes of varying thickness, t=0.13mm, 0.25mm and 0.5mm.)
- 11. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS
- \* Equipment Required:
  Lock Screw Wrench ......(VFKS0032)
  Post Adjustment Plate ....(VFKS0010)
  Reel Table Height Fixture
  ........(VFKS0009)
  Nut Driver ......(Purchase Locally)
  Post Adjustment Screwdriver
  .....(VFK0137)
- 1. Remove the Cassette Cover, Top Case and Cassette Up Unit. Place the Adjustment Plate.

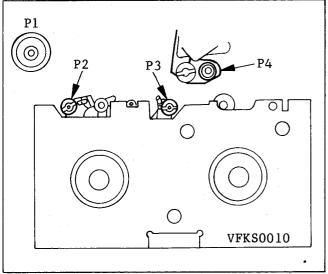


Fig. M27 Adj. of Tape Guide Post Height
-(1)

First lower all posts so that the condition of height becomes as shown below.

Lower end of post and tape guide should be lower than scraper.

Loosen lock screw located at lower portion of posts (P2 & P3) by Lock Screw Wrench, then turn the posts with post adjustment screwdriver.

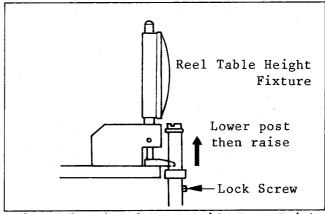


Fig. M28 Adj. of Tape Guide Post Height
-(2)

- 3. Place the fixture on the Adjustment Plate and fit the scraper to the Adjustment Plate as shown in Fig. M28. (The scraper of the fixture should be fully lowered till it touches plate.)
- 4. Set the fixture to zero "0" and slowly raise the post until it just touches the scraper. When the scraper touches the post, it should fit as shown below in Fig. M29 (b). For adjustment of P1 and P4, use the nut driver.

  (The Post cap on P4 can be removed by turning counterclockwise.) For adjustment of P2 and P3, use the post adjustment screwdriver.

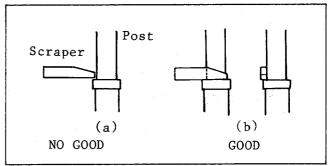


Fig. M29 Adj. of Tape Guide Post Height
-(3)

#### Note:

Upon Completion of adjustment, tighten lock screws on the P2 and P3 by Lock Screw Wrench and also install the post cap on post 4. When the post cap on P4 is reinstalled, the position of it should be as shown below when viewed from the direction indicated by the arrow.

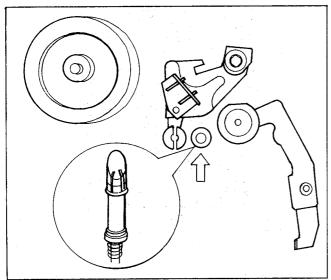


Fig. M30 Installation of Post Cap

12. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

#### Note:

To perform these adjustment/confirmation procedures, make sure that the tracking control is set in the detent (fixed) position.

*	Equipment Required: Alignment Tape VFMS0001H6
	Post Adjustment
	Screwdriver VFK0137
	H-Position Adjustment
	Screwdriver VFKS0003
	Lock Screw WrenchVFKS0032
	Lock Wrench (1.5mm) VFK76
	Nut Driver (5.5mm) Purchase Locally
	Oscilloscope

# 12-A. CONFIRMATION OF TAPE TRAVEL

1. Playback a cassette tape and confirm that the tape travels without curling at the edges of the tape.

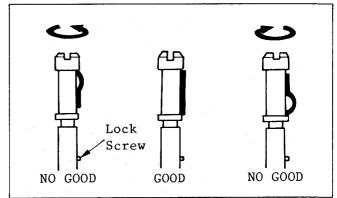


Fig. M31. Confirmation of Tape Travel

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver. (for P2 & P3)

#### Note:

Before turning P2 and P3, slightly loosen a lock screw by the Lock Screw Wrench.

# 12-B. CONFIRMATION OF A/C HEAD HEIGHT

This confirmation is required when the A/C Head was replaced and for preliminary height adjustment. For final adjustments, perform item 12-C,12-D, next page.

1. Looking at the lower edge of the control head with the tape running, ensure that the lower edge of the tape runs along the lower edge of the control head. If it doesn't, slightly turn the nut (A) in either direction to correct. Clockwise to lower the head and counterclockwise to raise it.

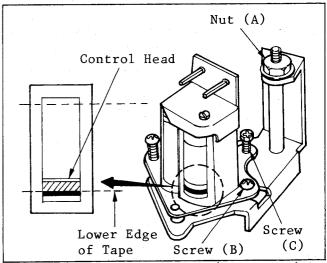


Fig. M32 Confirmation of A/C Head Height

# 12-C. CONFIRMATION OF TILT OF A/C HEAD

This procedure should be performed after the height adjustment of P4.

- 1. Playback the tape and confirm that the tape runs between lower and top limitters of P4post. Also confirm that the tape is running smoothly.
- 2. If adjustment is required, turn clockwise the screw (C) until curling is apparent at lower edge of P4. Then turn the screw (C) counterclockwise until the curling is smoothed out.

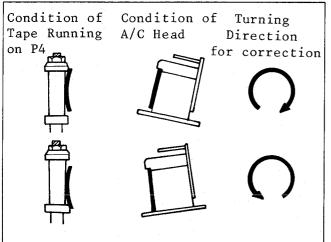


Fig. M33 Confirmation of A/C Head Tilt

# 12-D. HEIGHT AND AZIMUTH ADJUSTMENT OF A/C HEAD

- 1. Connect the oscilloscope to the audio output jack on the rear of the deck.
- Playback the monoscope portion (6kHz, Mono) of the alignment tape, VFMS0001H6.
- 3. Adjust the screw (B) on the head base so the output level becomes maximum.

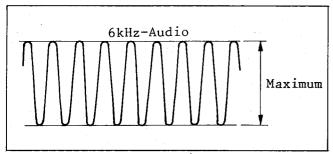


Fig. M34 Adj. of A/C Head Height

4. Readjust nut (A) for maximum output.

12-E. HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD

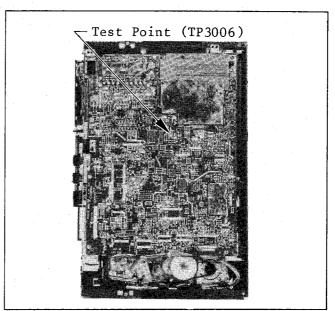


Fig. M35 Horizontal Position
Adjustment of A/C Head-(1)

- 1. Connect the oscilloscope to the TP3006 on Luminance Signal Process Section.
  Use TP2003 as a trigger.
- 2. Playback the monoscope portion of the alignment tape, VFMS0001H6 and confirm that RF envelope appears as in Fig. M37.
- 3. If adjustment is required, set the H-position screwdriver into the slot of the adjustment nut and rotate in either of right or left for the maximum envelope output.

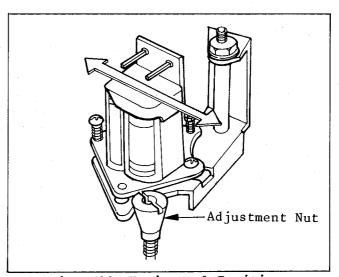


Fig. M36. Horizontal Position
Adjustment of A/C Head-(2)

# 12-F. CONFIRMATION/ADJUSTMENT OF ENVELOPE OUTPUT

- 1. Set the tracking control in the detent (fixed) position. Connect the oscilloscope to the Pin 14 of Luminance C.B.A.
- 2. Playback the monoscope portion of the alignment tape VFMS0001H6 and adjust the height of posts P2 and P3 watching the scope display so that the envelope becomes as flat as possible.

 $(V1/V-max \ge 0.7, V2/V-max \ge 0.8)$ If adjustment is required, turn top of post with post adjustment screwdriver. For adjustment of P2 & P3, refer to step 2 of item 12-A.

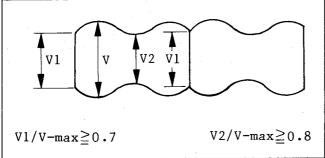


Fig. M37 Spec. of Envelope Figure-(1)

3. When the scope display is as follows, adjust the height of P2 so that the waveform looks like Fig. M40.

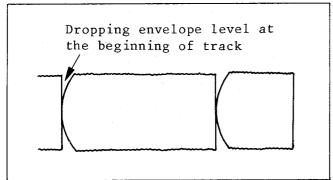


Fig. M38 Envelope Figure-(2)

4. When the scope display is as follows, adjust the height of P3 so that the waveform looks like Fig. M40.

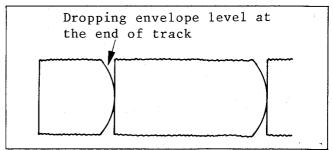


Fig. M39 Envelope Figure-(3)

5. The scope display should appear as shown below when P2 and P3 are adjusted correctly.

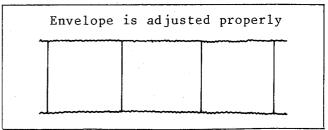
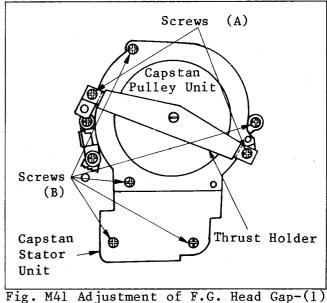


Fig. M40 Envelope Figure-(4)

6. Readjustment the Horizontal position of A/C Head.

## 13. ADJUSTMENT OF FG HEAD GAP

- \* Equipment Required: Fine Adjustment Screwdriver ... VFK0136
- \* Specification: 0.16 (+- 0.02) mm
  - 1. Remove 2 screws (A) on the Thrust Holder, then remove the Capstan Pulley Unit, 5 screws (B) and Capstan Stator Unit.



2. Slightly loosen the 2 screws (C) and set the fine adjustment screwdriver into the hole (D).

Turn screwdriver clockwise until the FG head touches the rotor and just slightly turn it counterclockwise so the gap becomes as specified.

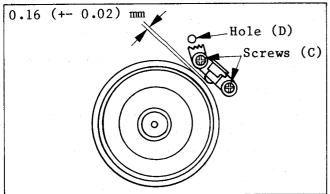


Fig. M42 Adjustment of F.G. Head Gap-(2)

# Note:

- 1. Do not touch the outside circumference surface of the rotor with any tool, and keep any magnetizable material away from the rotor magnet.
- 2. When reinstalling the Capstan Stator Unit, the circumfirence of the hole in the Capstan Stator Unit must be Centered with the circumference of the Rotor Boss.

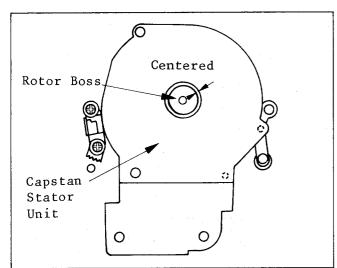


Fig. M43 Adjustment of F.G. Head Gap-(3)

14. CONFIRMATION/ADJUSTMENT OF THRUST GAP

\* Equipment Required:
Reel Table Height Fixture .... VFKS0009

\* Specification: 0.05 - 0.09mm

- 1. Place the Unit upside down and place the height fixture on the Thrust Holder. Set the fixture to zero "0".
- Next, push the capstan shaft by your finger, and confirm the thrust gap.
- 3. If the gap is out of specification, then adjust the thrust screw by turning it clockwise or counterclockwise.

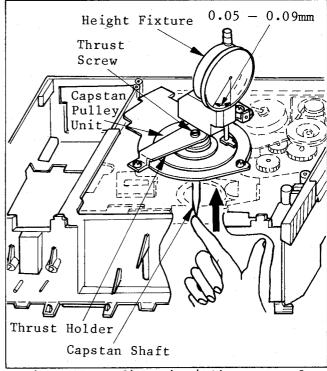


Fig. M44 Confirmation/Adjustment of Thrust Gap-(1)

# Note:

Upon completion of above procedure, adjust the capstan seal so that this seal is out of contact with the pressure roller and capstan holder. The specification of clearance is approx. 0.5 (+- 0.2) mm.

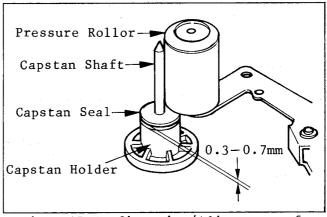


Fig. M45 Confirmation/Adjustment of Thrust Gap-(2)

# 15. ADJUSTMENT OF CAM GEAR AND MODE SELECT SWITCH

## General Condition:

The mechanism of this model is mostly engaged to the electrical circuit, System Control Circuit, through the mode select switch. Therefore the relation between the mode switch and the cam gear determines all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on. If the adjustment of this item is performed improperly, the deck will be unloaded or automatically stopped. It will also result in damage to mechanical and electrical parts.

## Note:

The Step 7 of this procedure describes the necessary adjustment if the mode select switch is replaced.

# Adjustment Procedures:

This procedure strats with the condition that the Cassette Lock Unit, Kick Base Unit, Sector Gear, Cam Gear and Driving Gear have been removed.

1. Turn loading gear clockwise until post 2 and 3 are fully unloaded. The small projection on the loading gear will be pointing up in the unloaded condition.

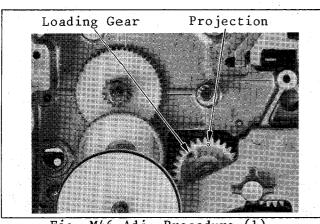


Fig. M46 Adj. Procedure-(1)

2. Install the driving gear so that the hole on the driving gear meets the projection on the loading gear.

Ensure that the loading gear is still in the fully unloaded condition.

Install the C-Ring to mount driving gear.

3. Slowly slide the main rod so that the hole (B) of the main rod meets the hole (C) of chassis.

This will simulate stop mode (unloading completion) of main rod and mode select switch.

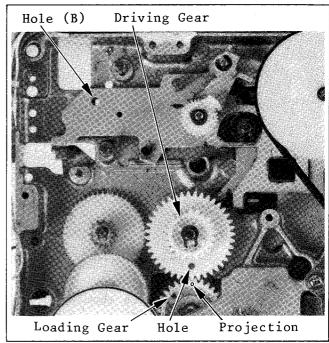


Fig. M47 Adj. Procedure-(2)

4. Insert the cam gear with the simple slot side showing so that the hole (A) on the gear meets the hole (B) on the main rod.

To facilitate matching the two holes, use the small hex, wrench or a metal pin. Then install the C-Ring to mount cam gear.

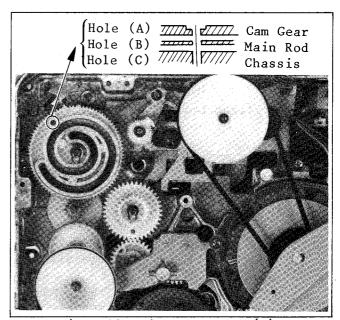


Fig. M48 Adj. Procedure-(3)

5. Install the sector gear so that the pin on the sector gear meets the inner slot of the cam gear as shown in Fig. M49. Also install C-Ring in order to mount sector gear.

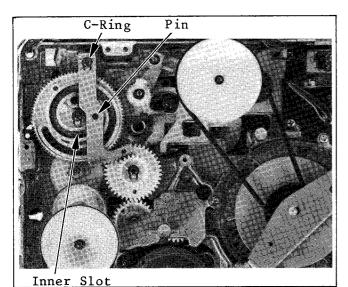


Fig. M49 Adj. Procedure-(4)

Completed adjustments should appear as illustrated below.

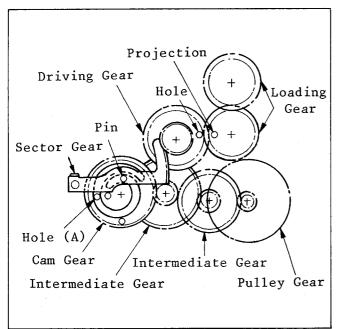


Fig. M50 Adj. Procedure-(5)

7. (Adjustment of Mode Select Switch)
Keep the main rod in the unloading
completion condition so that the
hole (A) cam gear, hole (B) of main
rod and the hole (C) of chassis are
aligned.

Upon completion, ensure that the movement of the deck is normal.

Place the Mode Select Switch so that the movable projection (A) on Mode Select Switch fits around the tab (B) on the main rod, enclosing it. Slowly slide the Mode Select Switch sideways until the V-notches in movable Projection and the V-notch on the Mode Select Switch are aligned. Tighten two screws (C) to secure alignment.

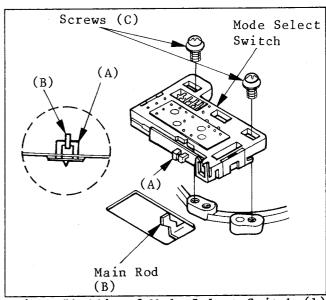


Fig. M51 Adj. of Mode Select Switch-(1)

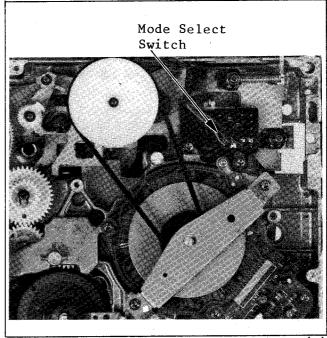
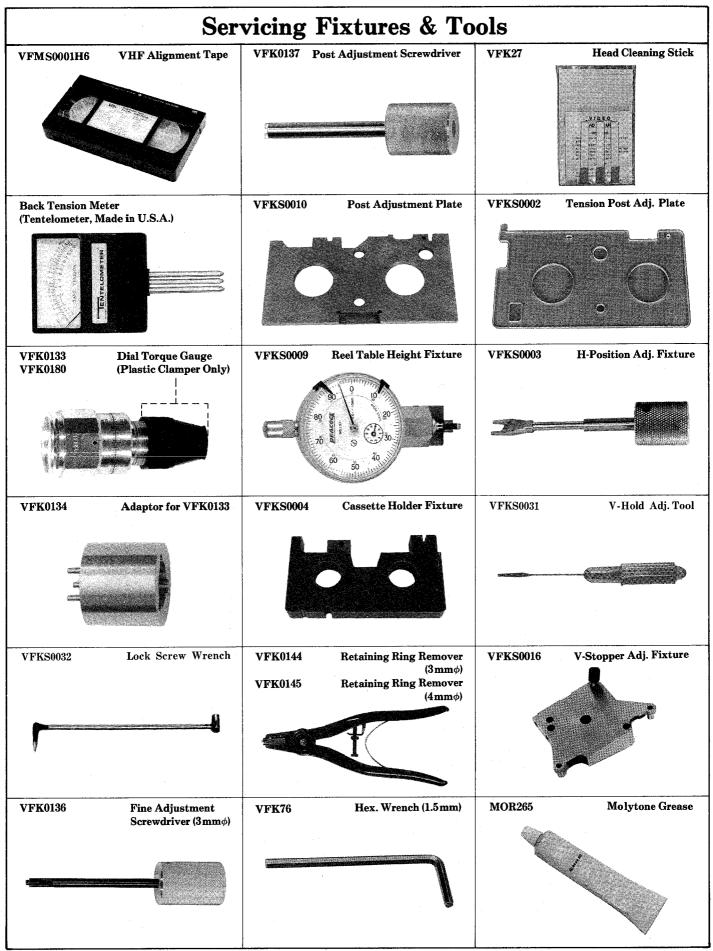


Fig. M52 Adj. of Mode Select Switch-(2)

- 8. Turn the Pulley gear in both directions to confirm smooth movement of this mechanism.
- 9. Install the Cassette Lock Unit and Kick Base Unit.



# ELECTRICAL ADJUSTMENT PROCEDURES

# 1. TEST EQUIPMENT

To perform the electrical adjustments completely, the following equipment is required.

- 1. DVM (Digital Volt Meter) Voltage Range: 0.001 - 50V
- 2. Dual-trace Oscilloscope Voltage Range: 0.005 - 50V/Div. Frequency Range: DC - 10MHz Prodes: 10:1, 1:1
- 3. Frequency Counter Frequency Range: 0 - 150MHz
- 4. Signal Generator Sinewave: 0 - 10MHz 5. AC Millivolt Meter
- Voltage Range: 0 3mVrms. 6. Tuning Amp.
- 8. Spectrum Analyzer
- 7. VIF Sweep Generator/Trap Adjuster
- 9. DC Power Supply Unit Voltage: 0 - 15V DC
- 10. Variable Attenuater Attenuate: (+-0) dB --50dB
- 11. Monitor Scope
- 12. Color TV Receiver or Monitor
- 13. V-Hold ADJ. Tool (VFKS0031)
- 14. Plastic Tip Driver and Non-Metal Driver
- 15. Lock Screw Wrench (VFKS0032)
- 16. VHS Alignment Tape (VFMS0001H6)

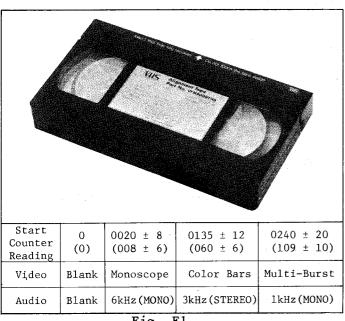


Fig. El

## 2. ADJUSTMENT PROCEDURES

These adjustment procedures consist of the following sections.

- 1. Servo Section
- 2. Audio Section
- 3. Luminance and Chrominance Section
- 4. System Control Section
- 5. TV Demodulator Section

# 2-1. SERVO SECTION

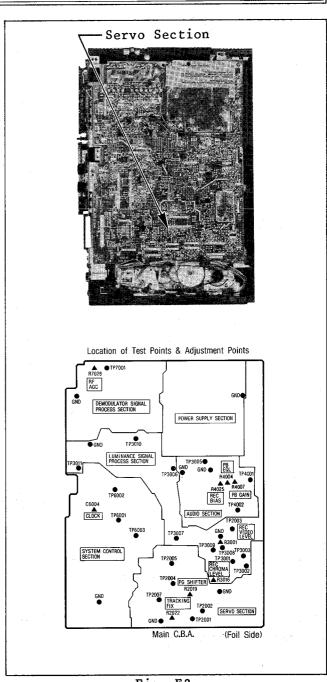


Fig. E2

# 2-1-1. HEAD SWITCHING POSITION ADJUSTMENT

Test Points: TP2003, TP3010 Adjustment: R2019 (PG SHIFTER)

- 1. Playback color bar section of the alignment tape.
- 2. Connect the scope CH 1 to TP3010 and CH 2 to TP2003 on the Luminance Signal Process Section. Set the scope to the CHOP mode.
- 3. Also set the scope to the Delay mode or expand the vertical interval of the signal from TP3010.
- 4. Adjust the PG SHIFTER (R2019) so that the head switching point is 6 (+- 1) H before the start of vertical sync as shown below.

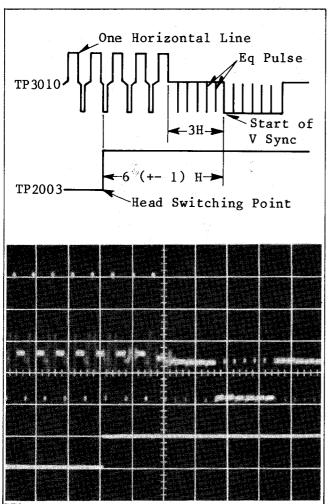


Fig. E3 TP3010 0.5V/0.1msec. div. TP2003 5V/0.1msec. div.

5. Change the slope selector on the scope from "+" to "-" and make sure that the other switching point is also 6 (+- 1) H before the beginning of vertical sync.

# 2-1-2. TRACKING FIX ADJUSTMENT

Test Points: TP2002, TP2003

Adjustment: R2022 (TRACKING FIX)

- 1. Supply a video signal to the Video Input on the rear panel or tune in a local TV program.
- 2. Set the Tracking Control on the front panel to the center detent point.
- 3. Insert a cassette tape and make a recording in the SP mode for a few minutes.
- 4. Playback the portion just recorded.
- 5. Connect the scope CH1 to TP2003 on the Luminance Signal Process Section and CH2 to TP2002 on the Servo Section.
- 6. Adjust the TRACKING FIX (R2022) so that the T is 0.4 (+- 0.4) msec.

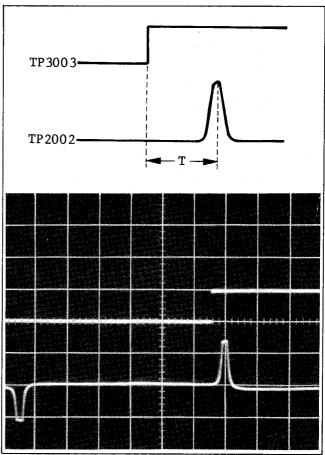


Fig. E4 TP2003 1V/2msec. div. TP2002 5V/2msec. div.

# 2-2. AUDIO SECTION

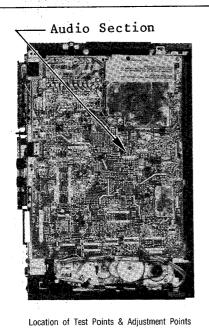


Fig. E5

Main C.B.A.

(Foil Side)

# 2-2-1. BIAS CURRENT ADJUSTMENT

Test Point: Audio Head Terminal Adjustment: R4025 (REC BIAS)

- 1. Plug in a phono plug to the Audio Input on the rear panel, but do not supply the Audio signal.
- 2. Insert a cassette and make a recording in the SP mode.
- 3. Connect the AC Millivolt Meter as shown in Fig. E6.

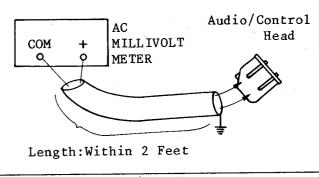
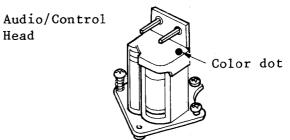


Fig. E6

4. While the recording is taking place, adjust the REC BIAS (R4025) on the Audio Section so that the voltage is within the specification.

(Specification should be decided by the color of the dot on A/C Head.)

COLOR DOT	ADJUSTMENT VOLTAGE
NO COLOR DOT	2.4 (+- 0.05) mVrms
RED COLOR	2.1 (+- 0.05) mVrms



Adjustment should be made depending on the color of the dot on the A/C head as above.

Fig. E7

5. Remove the AC Millivolt Meter.

# Note:

For Service replacement, A/C Head without color dot is supplied.

# 2-2-2. PLAYBACK GAIN AND EQUALIZATION ADJUSTMENT

Test Point: TP4001

Adjustments: R4004 (PB EQL)

R4007 (PB GAIN)

1. Supply a sinewave signal (1kHz and 5kHz, -30dB, 89mVp-p) to the Audio Input on the rear panel.

- 2. Supply the video signal to the Video Input on the rear panel.
- 3. Connect the AC Millivolt Meter to TP4001 on the Audio Section.
- 4. Insert a cassette tape and make a recording lkHz signal first then 5kHz signal in the SP mode. Read the voltage of lkHz.
- 5. Playback the lkHz portion just recorded.
- 6. Adjust PB GAIN (R4007) so that the voltage of playback is equal to that of recording.
- 7. Adjust the PB EQL (R4004) so that the 1kHz and 5kHz outputs are balanced.
- 8. Remove the AC Millivolt Meter.

### 2-3. LUMINANCE AND CHROMINANCE SECTION

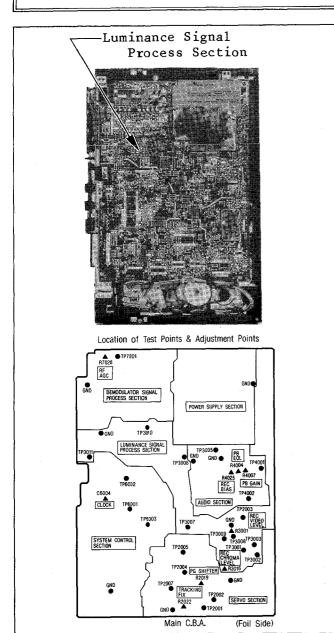


Fig. E8

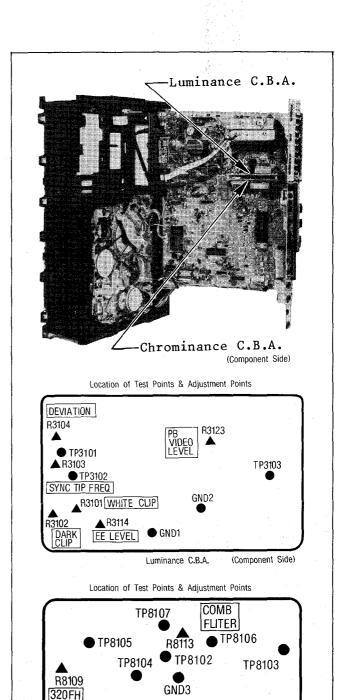


Fig. E9

Chrominance C.B.A.

(Component Side)

C8111

3.58MHz OSC

#### Note:

Do not bend or spread apart the Luminance and Chrominance C.B.A.s. By doing so, damage to the main C.B.A. or pins on the C.B.A.s may result. Signal check of these C.B.A.s should be performed on condition that one of these C.B.A.s is removed; soldering should be done on the foil side of the Main C.B.A.

### 2-3-1. E-E LEVEL ADJUSTMENT

Test Point: TP3010

Adjustment: R3114 (E-E LEVEL)

- 1. Supply the video signal (1Vp-p) to the Video Input on the rear panel.
- 2. Connect the scope to TP3010 on the Luminance Signal Process Section.
- 3. Place the unit in STOP mode.
- 4. Adjust the E-E LEVEL (R3114) on the Luminance C.B.A. so that the video level is 2.0 (+- 0.1) Vp-p.

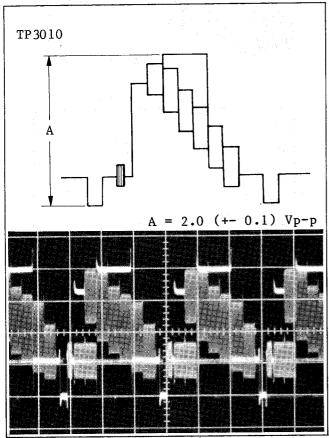


Fig. E10 TP3010 0.5V/20 u-sec. div.

### 2-3-2. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

Test Points: TP3002, TP3003, TP3009 Adjustments: R3103 (SYNC TIP FREQ)

R3104 (DEVIATION)

(A-1, Sync Tip Frequency Adjustment)

 Plug in a phono plug to the Video Input on the rear panel, but do not supply video signal.

- 2. Connect the frequency counter to TP3009 on the Luminance Signal Process Section.
- 3. Insert a cassette and place the unit in SP REC mode.
- 4. Adjust the SYNC TIP FREQ (R3103) so that the frequency is 3.4 (+- 0.04) MHz.
- 5. Remove the frequency counter.

### (A-2, Deviation Adjustment)

- 6. Turn the WHITE CLIP (R3101) and the DARK CLIP (R3102) to fully counter-clockwise from the component side.
- 7. Turn the REC VIDEO LEVEL (R3001) to fully counterclockwise and the REC CHROMA LEVEL (R3016) to fully clockwise from the component side.
- 8. Connect a signal generator (sinewave) to TP3008 through the resistor  $(1k\Omega)$ . Set the frequency and the output level of the signal generator.

Frequency: 4.35 (+- 0.04) MHz Output Level: 0.1Vp-p

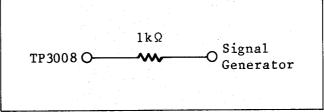


Fig. Ell

- 9. Supply a NTSC color bar signal (1Vp-p) to the Video Input on the rear panel.
- 10. Connect the scope to TP3003 (HOT) and TP3002 (GND) on the Luminance Signal Process Section.

  Use TP3010 as a trigger.
- 11. Turn the DEVIATION (R3104) to fully clockwise from the component side. Then slowly Adjust the DEVIATION (R3104) so that maximum beat is produced as shown below.

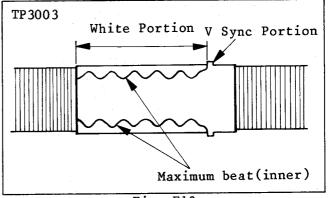


Fig. E12

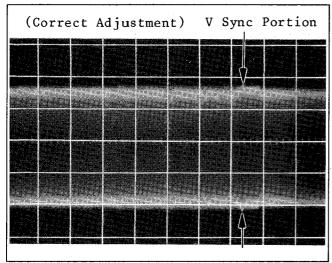


Fig. E13 TP3003 50mV/2msec. div.

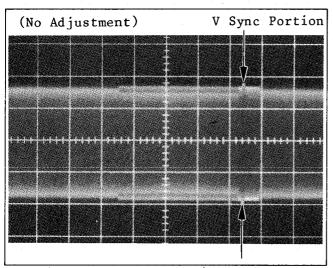
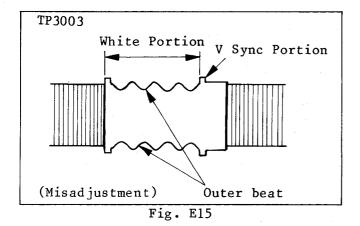


Fig. E14 TP3003 50mV/2msec. div.

Note: Inner beat is used for this adjustment but not outer beat as shown below.



12. Remove the resistor and a signal generator.

13. Make WHITE and DARK CLIP Adjustment and Recording Current Adjustment.

#### 2-3-3. WHITE AND DARK CLIP ADJUSTMENT

Test Point: TP3101

Adjustments: R3101 (WHITE CLIP) R3102 (DARK CLIP)

- 1. Supply a color bar signal to the Video Input on the rear panel.
- 2. Connect the scope to TP3101 on the Luminance C.B.A.
- 3. Place the unit in SP REC mode.
- 4. Adjust the WHITE CLIP (R3101) and the DARK CLIP (R3102) on the Luminance C.B.A. so that the overshoot and undershoot are as shown below.

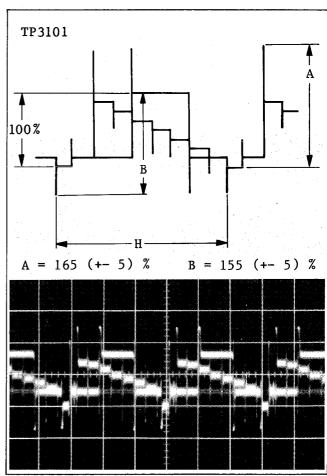


Fig. E16 TP3101 0.2V/20 u-sec. div.

#### 2-3-4. RECORDING CURRENT ADJUSTMENT

Test Points: TP3002, TP3003

Adjustments: R3001 (REC VIDEO LEVEL)

R3016 (REC CHROMA LEVEL)

1. Supply a color bar signal to the Video Input on the rear panel.

- 2. Insert a cassette tape and make a recording in the SP mode.
- 3. Connect the scope between TP3003 (HOT) and TP3002 (GND) on the Luminance Signal Process Section.
- 4. Turn the REC VIDEO LEVEL (R3001) fully clockwise from the component side.
- Set the scope 20mV/div.,
   u-sec/div. Use TP3010 as scope trigger.
- 6. Adjust the REC CHROMA LEVEL (R3016) on the Luminance Signal Process Section so that the level of cyan portion is 36 (+- 3) mVp-p.

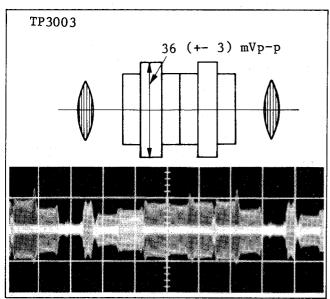


Fig. E17 TP3003 20mV/20 u-sec. div.

- 7. Then set the scope 20mV-div., 2msec/div.
  Use TP2003 as scope trigger.
- 8. Adjust the REC VIDEO LEVEL (R3001) on the Luminance Signal Process Section so that the level of V sync portion is 140 (+- 3) mVp-p.

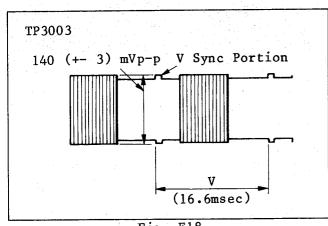


Fig. E18

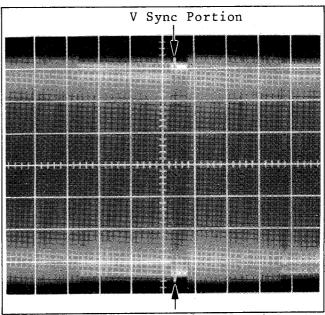


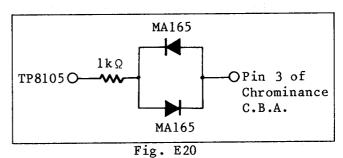
Fig. E19 TP3003 20mV/2msec. div.

### 2-3-5. 320FH VCO ADJUSTMENT

Test Point: TP8103

Adjustment: R8109 (320FH VCO)

- 1. Place the unit in STOP mode.
- 2. Connect the test point (TP8105) to Pin 3 of Chrominance C.B.A. through the resistor ( $1k\Omega$ ) and the diodes (MA165).



116. 220

- 3. Connect the frequency counter to TP8103 on the Chrominance C.B.A.
- 4. Adjust the 320FH VCO (R8109) from the component side on the Chrominance C.B.A. so that the frequency is 4.2 (+- 0.1) MHz.
- 5. Remove the frequency counter.

#### 2-3-6. 3.58MHZ OSC ADJUSTMENT

Test Point: TP8104

Adjustment: C8111 (3.58MHz OSC)

1. Place the unit in STOP mode.

2. Connect the test point (TP8102) to GND on the Chrominance C.B.A. through the resistor ( $22k\Omega$ ) and the capacitor (0.01 u-F).

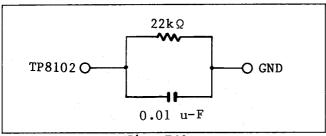


Fig. E21

- 3. Connect the frequency counter to TP8104 on the Chrominance C.B.A.
- 4. Adjust the 3.58MHz OSC (C8111) from the component side on the Chrominance C.B.A. so that the frequency is 3.579545 MHz (+- 20) Hz.
- 5. Remove the frequency counter.

#### 2-3-7. COMB FILTER ADJUSTMENT

Test point: TP3010

Adjustment: R8113 (COMB FILTER)

- 1. Supply a color bar signal to the Video Input on the rear panel.
- 2. Insert a cassette and make a recording in the SLP mode.
- 3. Connect the scope to TP3010 on the Luminance Signal Process Section.
- 4. Playback the portion just recorded.
- 5. Turn the Tracking Control on the front panel for the poorest tracking. (Worst playback image.)
- 6. During playback, adjust the COMB FILTER (R8113) on the Chrominance C.B.A. from the component side as shown below.

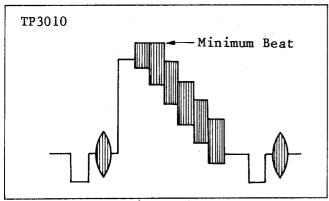


Fig. E22

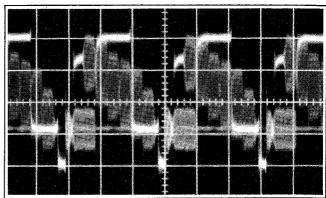


Fig. E23 TP3010 0.5V/20 u-sec. div.

#### 2-3-8. PLAYBACK LEVEL ADJUSTMENT

Test Point: TP3010

Adjustment: R3123 (PB VIDEO LEVEL)

- 1. Supply a color bar signal (IVp-p) to the Video Input on the rear panel.
- Insert a cassette and make a recording in the SP mode for a few minutes.
- 3. Connect the scope to TP3010 on the Luminance Signal Process Section.
- 4. Playback the portion just recorded.
- 5. During playback, adjust the PB VIDEO LEVEL (R3123) on the Luminance C.B.A. so that the video level is 2.0 (+- 0.1) Vp-p.
- 6. Confirm that the level of cyan portion is 1.36 (+- 0.2) Vp-p.

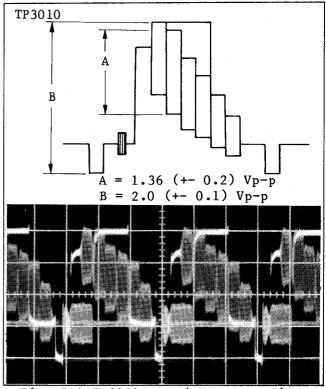


Fig. E24 TP3010 0.5V/20 u-sec. div.

### 2-4. SYSTEM CONTROL SECTION

#### 2-5. TV DEMODULATOR SECTION

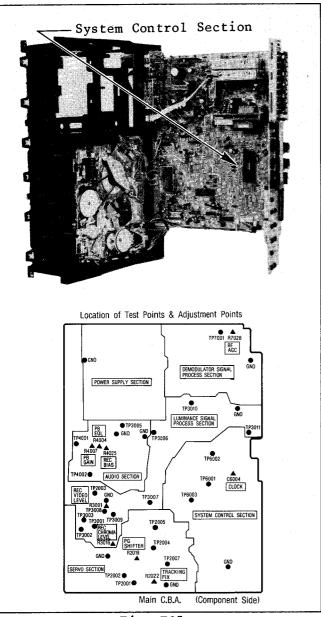


Fig. E25

### 2-4-1. CLOCK ADJUSTMENT

Test Point: TP6001

Adjustment: C6004 (CLOCK)

- 1. Connect the frequency counter with 10:1 Probe to TP6001 on the System Control Section.
- 2. Adjust the CLOCK (C6004) from the component side so that the frequency at TP6001 is 349.525 (+- 0.01) kHz.
- 3. Remove the frequency counter.

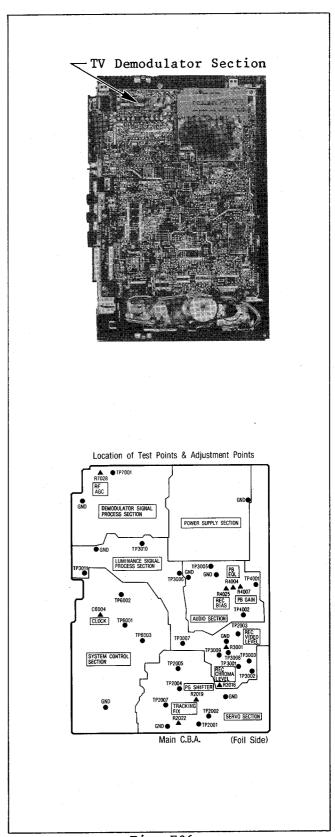
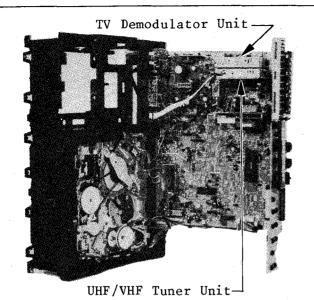
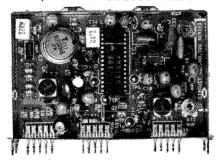


Fig. E26

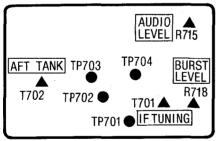


(Component Side)

#### T/V Demodulator Unit

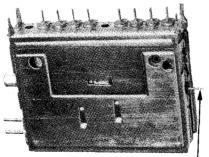


Location of Test Points & Adjustment Points



TV Demodulator Unit (Component Side)

UHF/VHF Tuner Unit



Tuner Test Point

Fig. E27

### 2-5-1. VIF OVERALL CONFIRMATION AND VCO ADJUSTMENT

Test Points: TP703, TP704 Adjustment: T701 (VCO)

#### (CAUTION)

Since the TV Demodulator Unit and UHF/VHF Tuner Unit have already been factory adjusted, do not try to adjust unless absolutely necessary.

### A: Factory Adjustment

#### A-1. VIF Overall Confirmation

1. Connect the VIF Sweep Generator/Trap Adjuster and Monitor Scope as shown below.

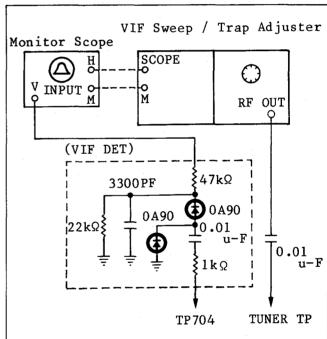


Fig. E28

- 2. Connect the output of the VIF Sweep Generator to tuner test point on the UHF/VHF Tuner Unit.
- 3. Connect the V Input of the Monitor Scope to TP704 on the TV Demodulator Unit through VIF Detector.
- 4. Control to Channel 13.
- 5. Set the AFT switch to "OFF" position.
- 6. Connect the DC Power Supply Unit to TP701 on the TV Demodulator Unit.
- 7. Connect TP702 and GND with a 3.3 u-F/25V capacitor.
- 8. Adjust the VCO (T701) so that the beat portion is at center as shown in Fig. E30.

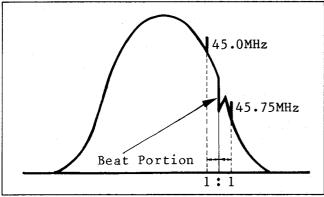


Fig. E29

- 9. Set the voltage on the TP701 so that the waveform level is maximum.
- 10. Adjust the output of the VIF Sweep Generator so that the A level is 1.0Vp-p.

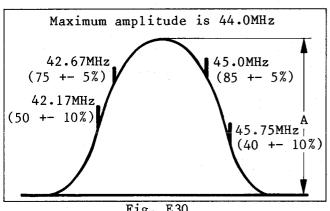


Fig. E30

- 11. Increase the VIF Sweep Generator output by 25dB.
- 12. Adjust the output of the DC Power Supply Unit so that the A portion becomes 1.0Vp-p.
- 13. Confirm that the Sweep output waveform is as shown in Fig. E30.
- 14. Adjust the VCO (T701) so that the Beat portion is 45.75MHz marker as shown below.

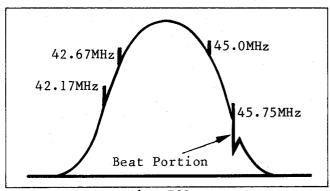


Fig. E31

15. Remove the capacitor.

### A-2. VCO Adjustment

- 1. Adjust the DC Power Supply Unit output by OV.
- 2. Connect a 3.3 u-F/25V capacitor between TP702 and GND.
- 3. Connect the Frequency Counter to TP703 on the TV Demodulator Unit through a Tuning Amp.

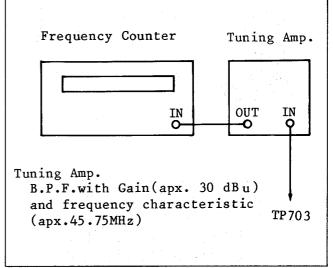


Fig. E32

- 4. Adjust the VCO (T701) so that the frequency is 45.75 (+- 0.02) MHz
- 5. Remove the capacitor.
- B. Field Adjustment
- 1. Supply the NTSC standard color bar signal to the RF Input on the rear panel and tune this signal.
- 2. Connect the scope to TP704 on the TV Demodulator Unit.
- 3. Adjust the VCO (T701) so that the waveform is as shown below.

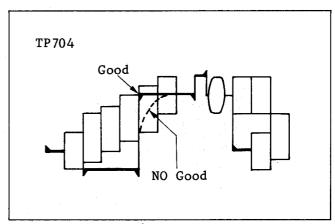


Fig. E33

#### 2-5-2. AFT TANK ADJUSTMENT

Test Point: Tuner Test Point (TP) Adjustment: T702 (AFT)

- 1. Tune in a local TV program on Channel 4.
- 2. Connect the frequency counter to tuner test point on the UHF/VHF Tuner Unit through a  $10\,\mathrm{k}\Omega$  resistor and a  $10\,\mathrm{PF}$  capacitor.

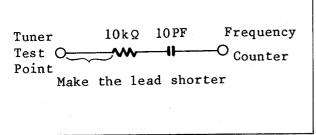


Fig. E34

- Set the AFT switch on the front panel to "OFF".
- 4. Adjust the tuning VR on the front panel so that the frequency is 113.00 (+- 0.01) MHz.
- 5. Set the AFT switch on the front panel to "ON".
- 6. Adjust the AFT (T702) so that the frequency is 113.00 (+- 0.005) MHz.
- 7. Remove the frequency counter.

### 2-5-3. BURST LEVEL ADJUSTMENT

Test Point: Pin 10 of TV Demodulator

Unit

Adjustment: R718 (BURST LEVEL)

- Supply the NTSC standard color bar signal to the RF Input on the rear panel and tune this signal.
- Connect the scope to Pin 10 of TV Demodulator Unit.
- 3. Confirm that the video level at Pin 10 of TV Demodulator Unit is 1.0 (+- 0.2) Vp-p.
- 4. Adjust the BURST LEVEL (R718) so that the burst level is 22 (+- 1) % of video level.
- 5. Confirm that the sync level is more than 24% of video level.

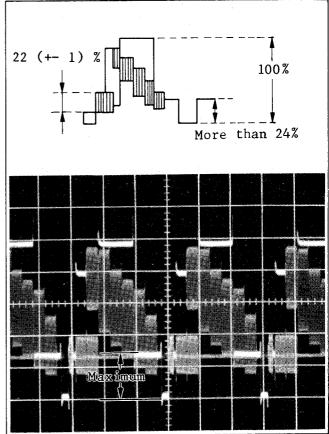


Fig. E35 Pin 10 of TV Demodulator Unit 0.2V/20 u-sec. div.

### 2-5-4. AUDIO LEVEL ADJUSTMENT

Test Point: Pin 15 of the

TV Demodulator Unit

Adjustment: R715 (AUDIO LEVEL)

- 1. Supply TV RF signal with audio modulation of 400Hz at 30% to the RF Input on the rear panel.
- 2. Connect the scope between Pin 15 of the TV Demodulator Unit and GND.
- 3. Set the AFT switch on the front panel to "ON".
- 4. Adjust the AUDIO LEVEL (R715) so that the level is 140 (+- 10)mVp-p.

### 2-5-5. RF AGC ADJUSTMENT

Test Point: TP7001

Adjustment: R7028 (RF AGC)

A: Factory Adjustment

- 1. Tune in a color bar signal (VHF).
- 2. Set the AFT switch on the front panel to "ON".

- 3. Set the input level of electric field to 63 (+- 1) dBu. (Using the Attenuator and Spectrum Analyzer)
- 4. Connect the scope to TP7001 on the Demodulator Signal Process Section.
- 5. Turn the RF AGC (R7028) on the Demodulator Signal Plocess Section fully counterclockwise from foil side.
- 6. Then slowly turn the RF AGC (R7028) till just before the voltage drops.
- 7. Change the input electric field from 63 dBu to 66 dBu.
- 8. Confirm that the voltage at TP7001 has dropped more than 1.0V.

### B: Field Adjustment

- 1. Supply a local TV Signal to the RF Input on the rear panel and tune this signal.
- 2. Set the AFT switch on the front panel to "ON".
- 3. Connect the scope to pin 10 of TV Demodulator Unit and GND.
- 4. Adjust the RF AGC (R7028) so that the H-sync is Maximum and it's shape can be observed clearly.

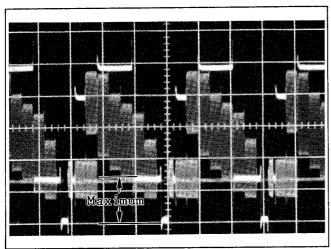


Fig. E36 Pin 10 of TV Demodulator Unit 0.2V/20 u-sec. div.

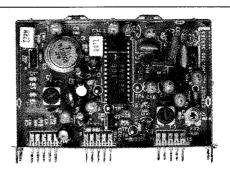
5. Confirm that the noise band and beat does not appear on the TV screen.

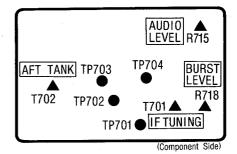
#### Note:

This proceduce is just a simplified method. So use the factory Adjust-ment for a more accurate or interchangeable adjustment.

### TV Demodulator Unit

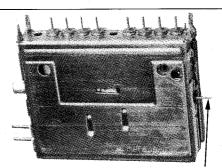
### **VEQS0257**



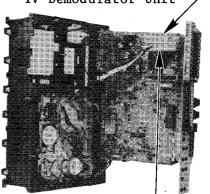


### UHF/VHF Tuner Unit

TNV56751F2R (PV-1230) TNV76755F2R (PV-1222, PV-1225)

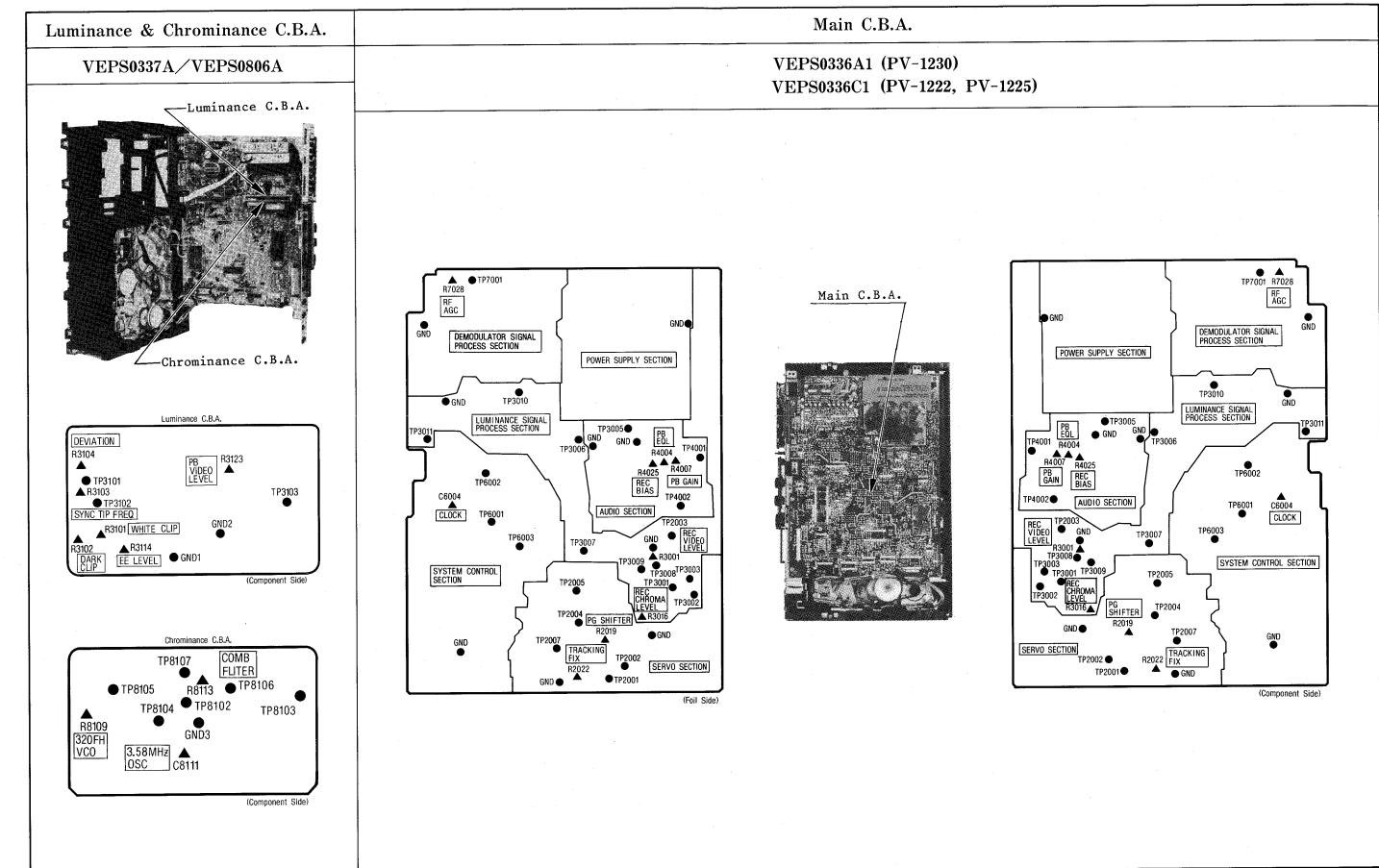


Tuner Test Point
TV Demodulator Unit —



UHF/VHF Tuner Unit-

### Location of Test Points and Adjustment Points



# Service Man

Vol. 3

**Block Diagrams** 

**Panasonic** Monivision PV-1222 PV-1225

Video Cassette Recorder

#### **SPECIFICATIONS**

Power Source:

 $120 \text{ V AC } \pm 10\%, 60 \text{ Hz } \pm 0.5\%$ 

Power Consumption:

Approx. 18 watts

Television System:

EIA Standard (525 lines, 60 fields)

NTSC color signal

Video Recording

System: 2 rotary heads, helical scanning system

Luminance: FM azimuth recording Color signal: Converted subcarrier phase

shift recording

Audio Track:

1 track

Tape Format:

Tape width 1/2" (12.7 mm), high density

tape

Tape Speed:

SP mode: 1-5/16 i.p.s. (33.35 mm/s) LP mode: 21/32 i.p.s. (16.67 mm/s)

SLP mode: 7/16 i.p.s. (11.12 mm/s)

Record/Playback Time: 8 HRS. with 160 min. type tape used in

SLP mode

FF/REW Time:

Less than 6 min. with 120 min. type tape

Video: 2 rotary heads

Heads:

Audio/Control: 1 stationary head

Erase: 1 full track erase

1 audio track erase

Input Level:

Video: VIDEO IN Jack (RCA type)  $1.0 \, \text{Vp-p}, \, 75 \Omega$  unbalanced

Audio: AUDIO IN Jack (RCA type)  $-20\,\mathrm{dB}$ ,  $50\,\mathrm{k}\Omega$  unbalanced

TV Tuners: VHF Input: VHF Ch2-Ch13,

 $75\Omega$  unbalanced

UHF Input: Ch14-Ch83,

 $300\Omega$  balanced

Output Level:

Video: VIDEO OUT Jack (RCA type)

 $1.0 \,\mathrm{Vp}$ -p,  $75\Omega$  unbalanced

Audio: AUDIO OUT Jack (RCA type)

 $-6 \, \mathrm{dB}$ ,  $600 \Omega$  unbalanced

RF Modulated: Ch3/Ch4 switchable,

72dBµ, (Open Voltage)

 $75\Omega$  unbalanced

Video Horizontal

Resolution: Color: more than 230 lines

B/W: more than 230 lines



Audio Frequency

Response: SP mode: 100 Hz ~ 8 kHz

(10dB down)

LP mode: 100 Hz ~ 6 kHz SLP mode:  $150 \, \text{Hz} \sim 5 \, \text{kHz}$ 

Signal-to-Noise Ratio: Video: SP mode: better than 41dB LP mode: better than 41dB

SLP mode: better than 41dB (Rohde & Schwarz noise meter)

Audio: SP mode: better than 42dB LP mode: better than 40dB SLP mode: better than 40dB

Operation

Temperature: 41°F-104°F (5°C-40°C)

10%-75% Operating Humidity:

Weight:

13.0 lbs. (5.9 kg)

Dimensions:

 $16-15/16"(W) \times 11-5/8"(D) \times 4-1/4"(H)$ 

 $(430 \,\mathrm{mm} \times 295 \,\mathrm{mm} \times 108 \,\mathrm{mm})$ 

Accessories Supplied:

• Remote control unit VHF connecting cable

•  $300\Omega$ — $75\Omega$  transformer

• Twin-lead cable

Available Tapes:

1/2" VHS video cassette tapes

NV-T160 Approx. 1073 ft. (327 m), 160,

320, or 480 min

NV-T120 Approx. 810 ft. (247 m), 120, 240,

or 360 min

NV-T60 Approx. 417ft. (127m), 60, 120,

or 180 min.

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

### **Panasonic**

Matsushita Engineering & Service Company Division of Matsushita Electric Corporation of America 50 Meadowland Parkway, Secaucus New Jersey 07094

Panasonic Hawaii Inc 91-238 Kauhi St. Ewa Beach P.O. Box 774 Honolulu, Hawaii 96808-0774

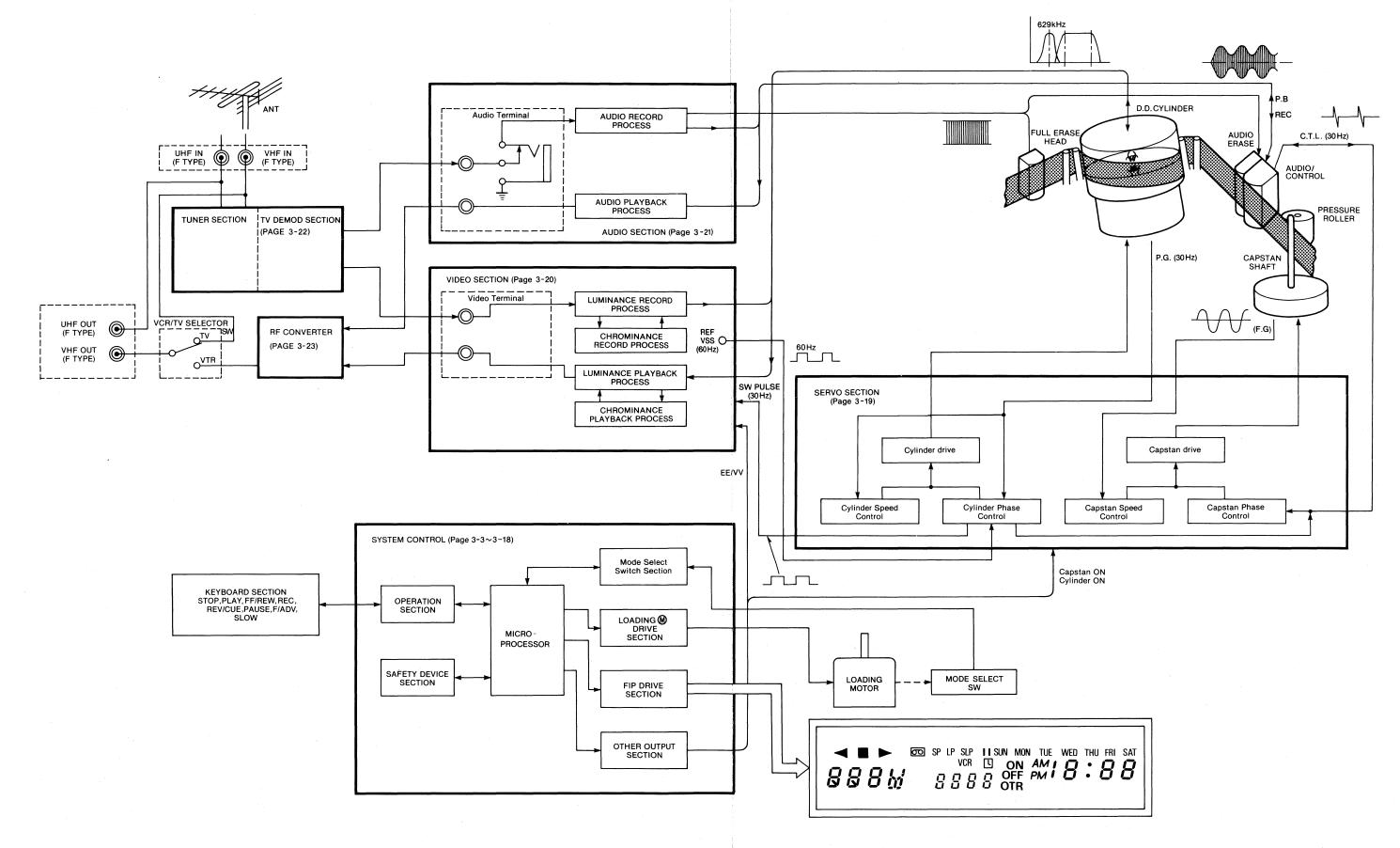
Matsushita Electric of Canada Limited 5770 Ambler Drive, Mississauga Ontario, L4W 2T3

Division of Matsushita Electric of Puerto Rico, Inc. Ave. 65 De Infanteria, KM 9.7 Victoria Industrial Parl Carolina, Puerto Rico 00630

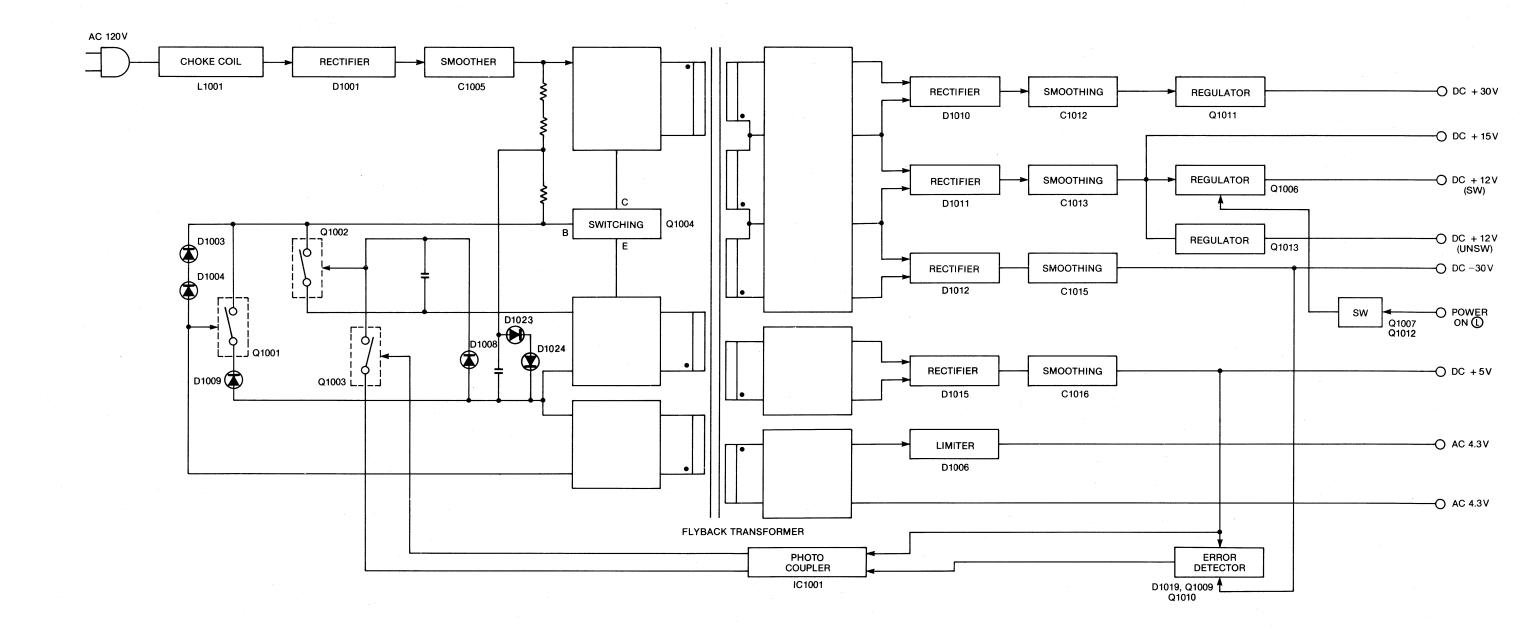
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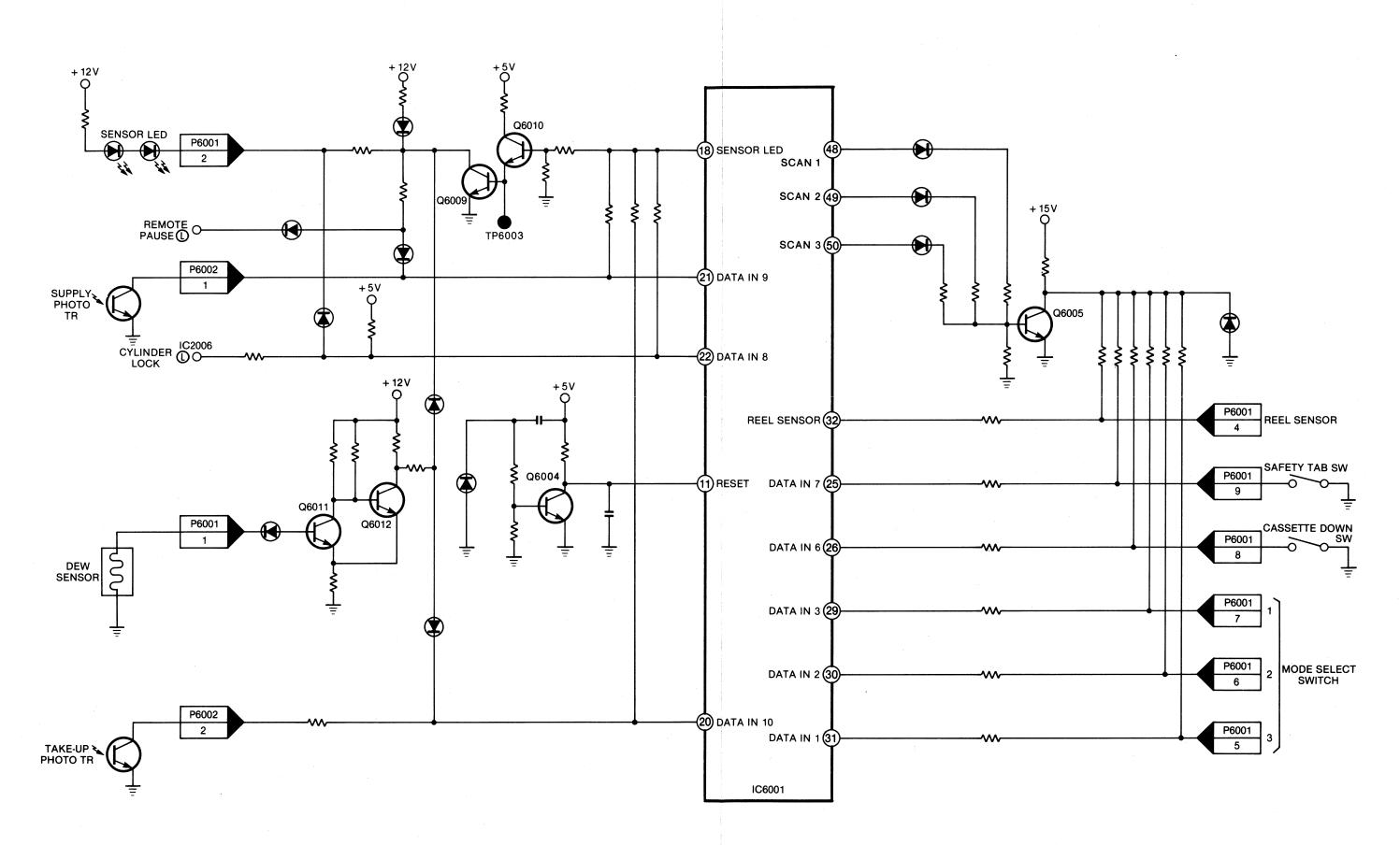
### **OVERALL BLOCK DIAGRAM**



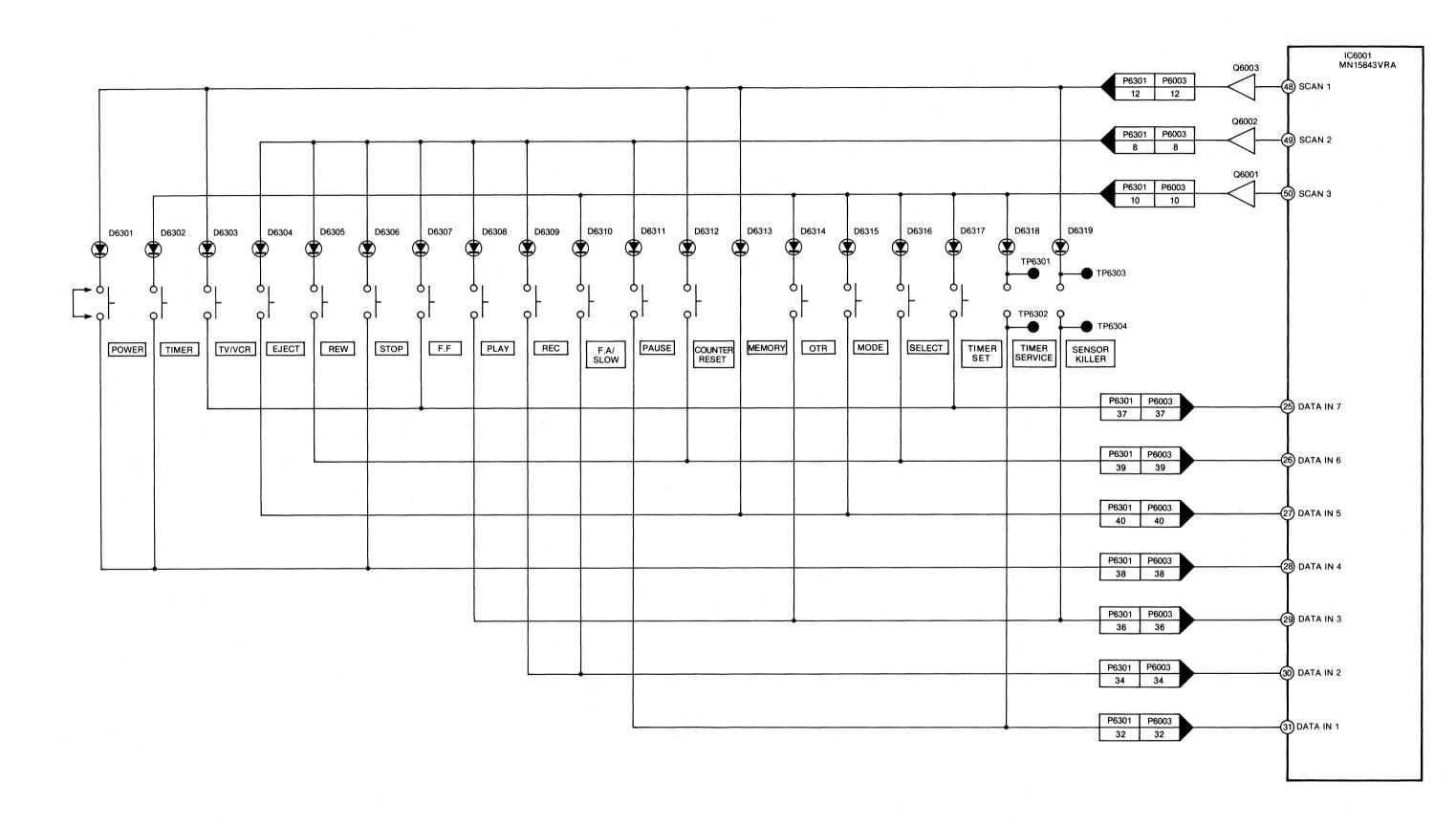
### **POWER SUPPLY BLOCK DIAGRAM**



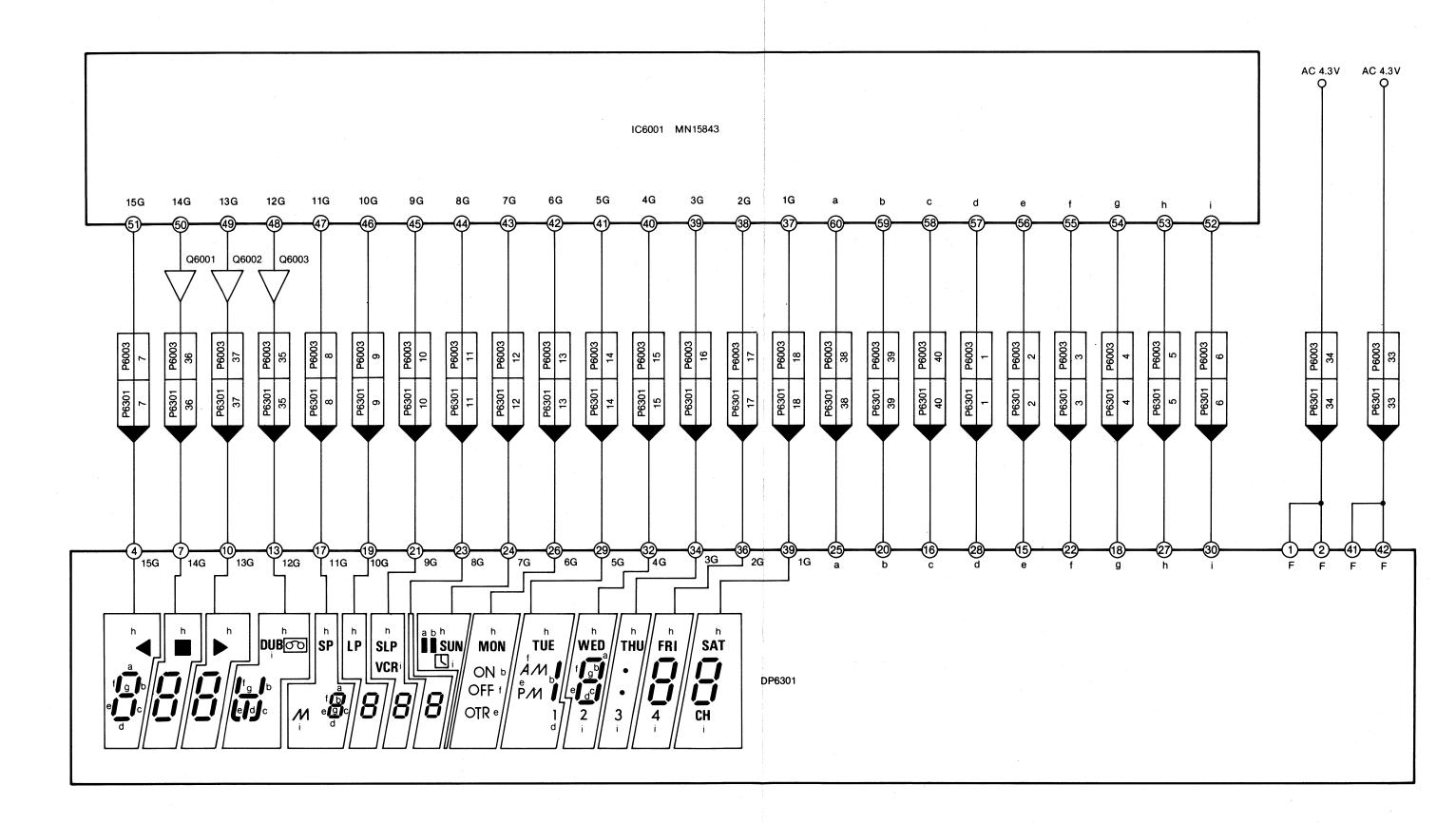
### SAFETY FEATURES BLOCK DIAGRAM (SYSTEM CONTROL)



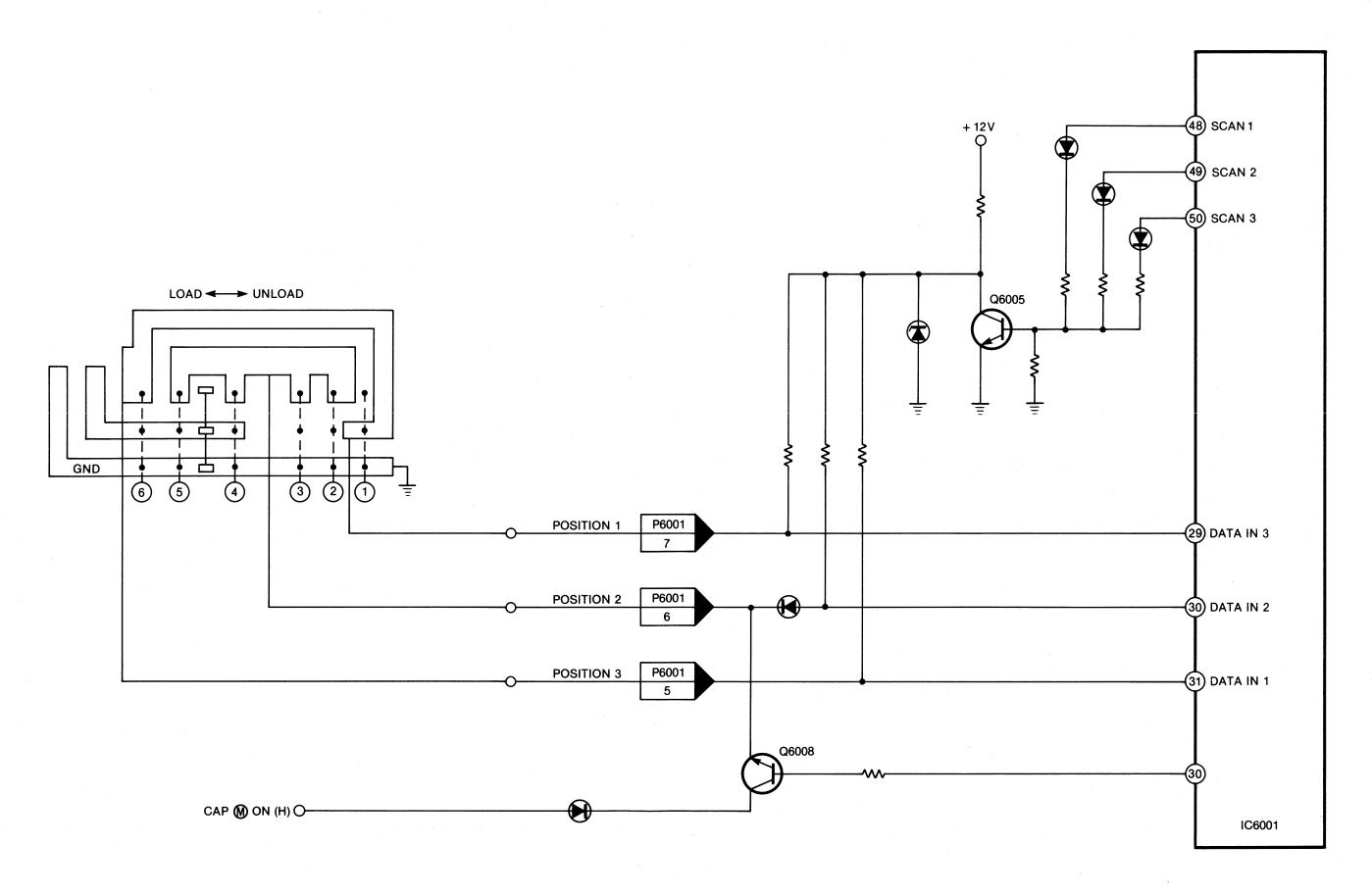
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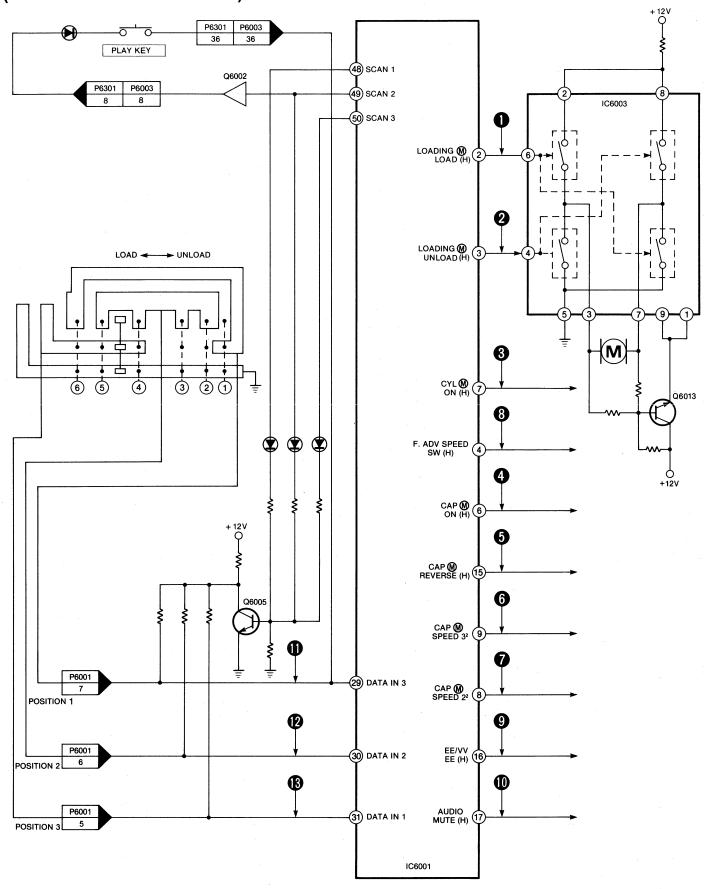


### MICROPROCESSOR (IC6001: MN15843VRA) I/O CHART (SYSTEM CONTROL)

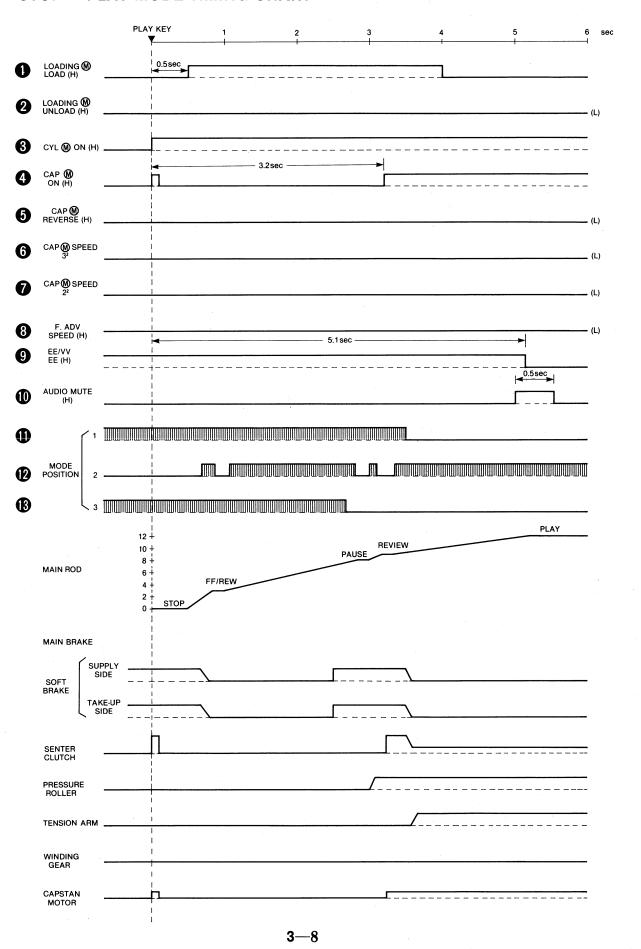
PIN	1/0	NAME/OPERATION					
1		GND					
2	OUTPUT	LOADING (M) FORWARD (H)					
3	OUTPUT	LOADING (M) REVERSE (H)					
4	OUTPUT	FRAME ADVANCE SPEED SWITCH (H)					
5	OUTPUT	SPEED MEMORY (L)					
6	OUTPUT	CAPSTAN (M) ON (H)					
7	OUTPUT	CYLINDER ON (H)					
8	OUTPUT	2² (CAPSTAN (M) SPEED) (H)					
9	OUTPUT	3² (CAPSTAN (M) SPEED) (H)					
10	INPUT	SYNC SIGNAL					
11	INPUT	RESET					
12	INPUT	INTERRUPT REQUEST					
13	OUTPUT	CHANNEL LOCK					
14	OUTPUT	TV/VCR (TV (H))					
15	OUTPUT	CAPSTAN (M) REVERSE (H)					
16	OUTPUT	EE/VV (EE (H))					
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18	OUTPUT	SENSOR LED					
19	INPUT	REF VOLTAGE 1					
20	INPUT	DATA IN 10 (DEW SENSOR, TAKE-UP SENSOR)					
21	INPUT	DATA IN 9 (SUPPLY SENSOR, REMOTE PAUSE)					
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24	INPUT	SYSCON +5V					
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			SCAN 2	FF KEY			
			SCAN 2	TIMER ADJ KEY			
			JOAN J	THE TABLET			
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		·	JUAN 3	TOVVERTORYOFF RET			

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			SCAN 1	O.T.R KEY
			SCAN 2	PLAY KEY
			SCAN 3	SERVICE
30	INPUT	DATA IN 2		
	:		SCAN PULSE	OPERATION
			SCAN 1	F. ADV KEY
			SCAN 2	REC KEY
31	INPUT	DATA IN 1		
	8		SCAN PULSE	OPERATION
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			SCAN 2	PAUSE KEY
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33	OUTPUT	POWER ON (L)		
34	OUTPUT	EXCEPT PLAY (H)		
35	OUTPUT	CUE/REVIEW/SLOW/S	TILL (H)	
36	OUTPUT	DELAY REC (L)		
37	OUTPUT	GRID E		
38	OUTPUT	GRID D		
39	OUTPUT	GRID C		
40	OUTPUT	GRID B		
41	OUTPUT	GRID A		
42	OUTPUT	GRID 9		
43	OUTPUT	GRID 8		
44	OUTPUT	GRID 7		
45	OUTPUT	GRID 6	•	
46	OUTPUT	GRID 5		
47	OUTPUT	GRID 4		
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54	OUTPUT	SEGMENT 6		
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58	OUTPUT	SEGMENT 2		
59	OUTPUT	SEGMENT 1 SEGMENT 0		
60	OUTPUT			
61	INPUT INPUT	Vpp OSC 2		
62	INPUT	OSC 2 OSC 1		
63 64	INPUT	Vdd		

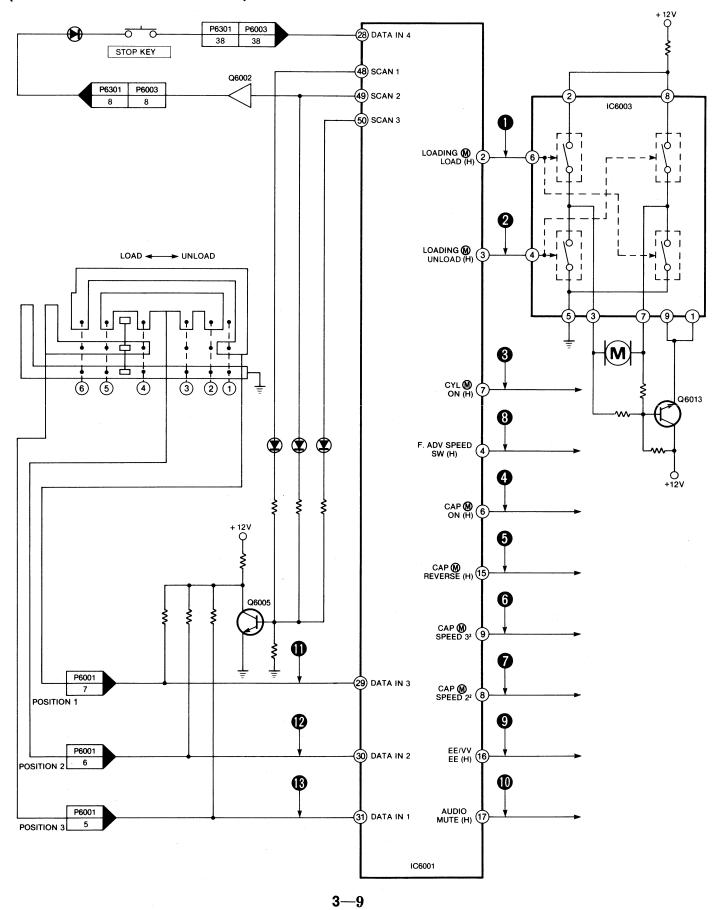
## STOP → PLAY MODE BLOCK DIAGRAM (SYSTEM CONTROL)



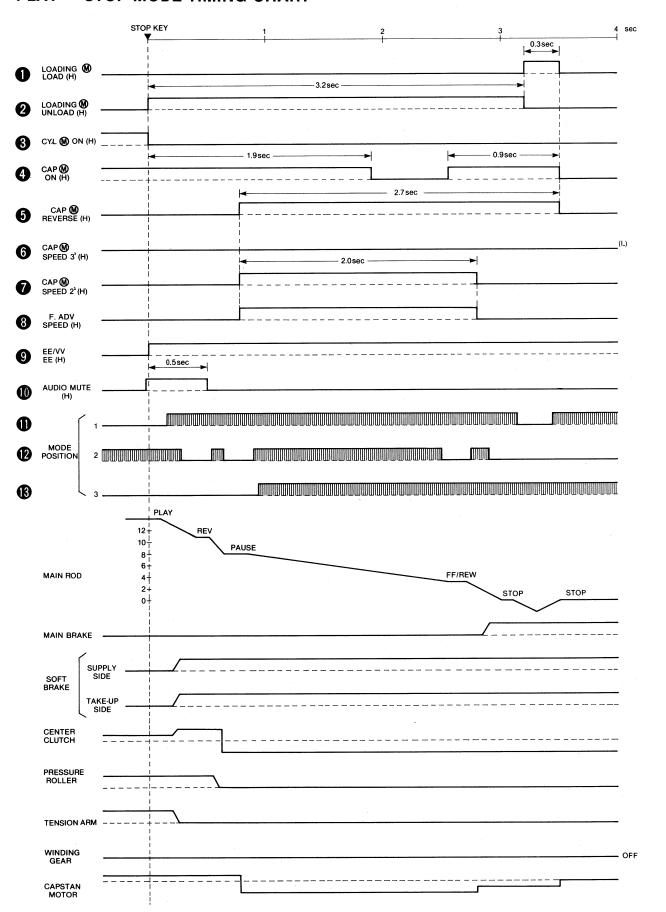
### **STOP** → **PLAY MODE TIMING CHART**



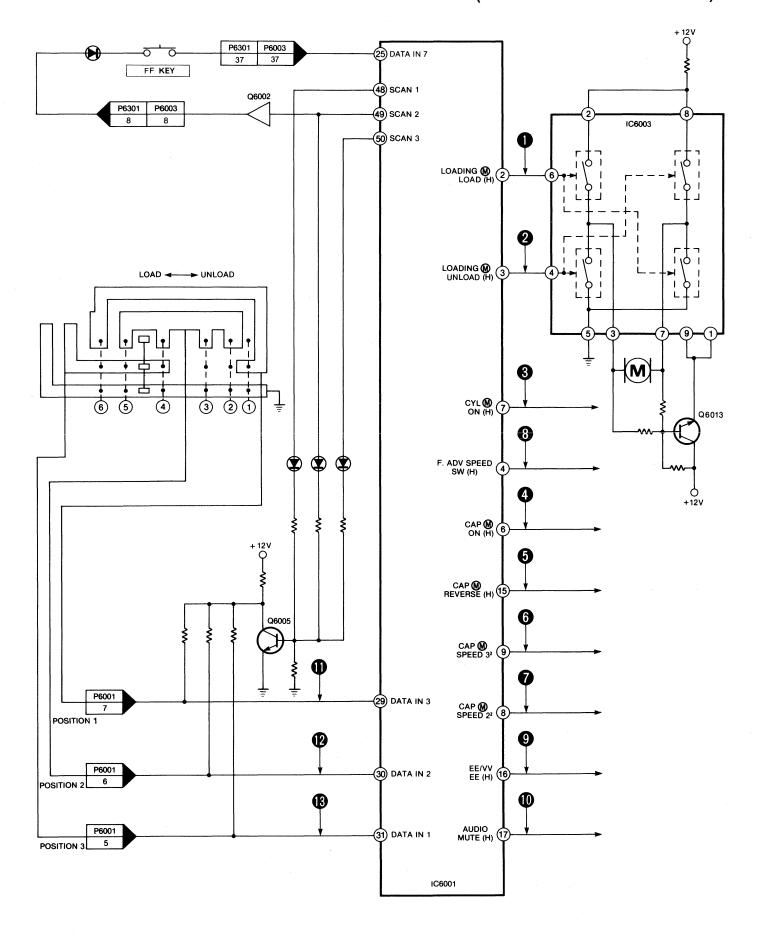
## PLAY → STOP MODE BLOCK DIAGRAM (SYSTEM CONTROL)



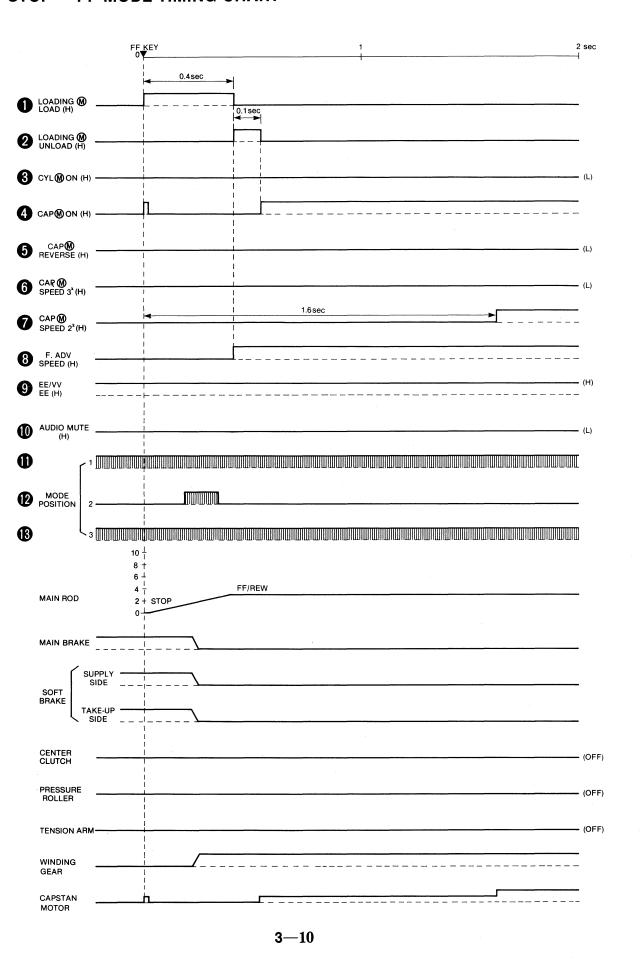
### **PLAY** → **STOP MODE TIMING CHART**



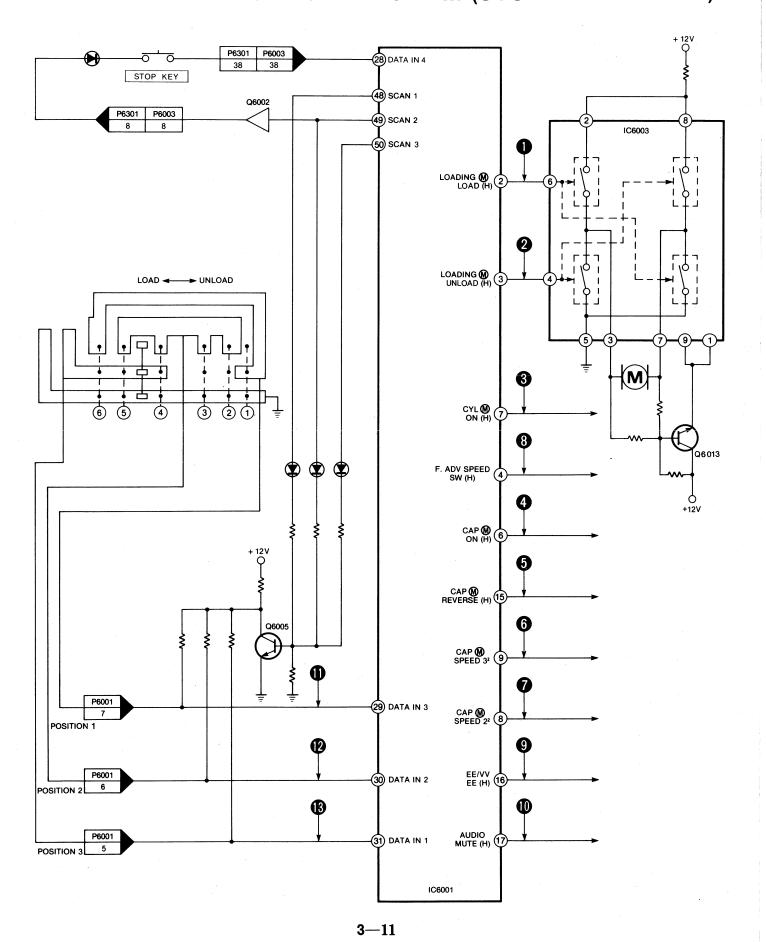
### STOP → FF MODE BLOCK DIAGRAM (SYSTEM CONTROL)



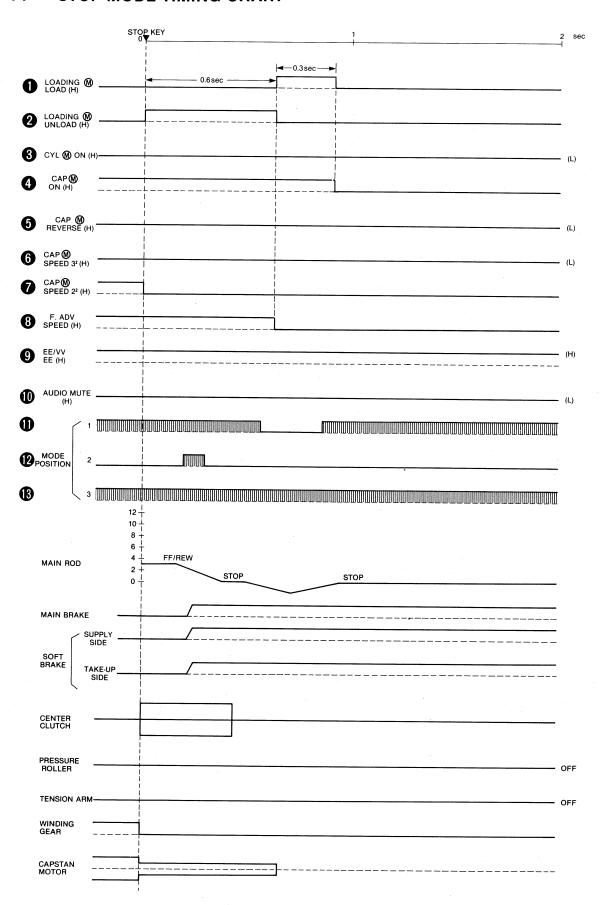
### STOP → FF MODE TIMING CHART



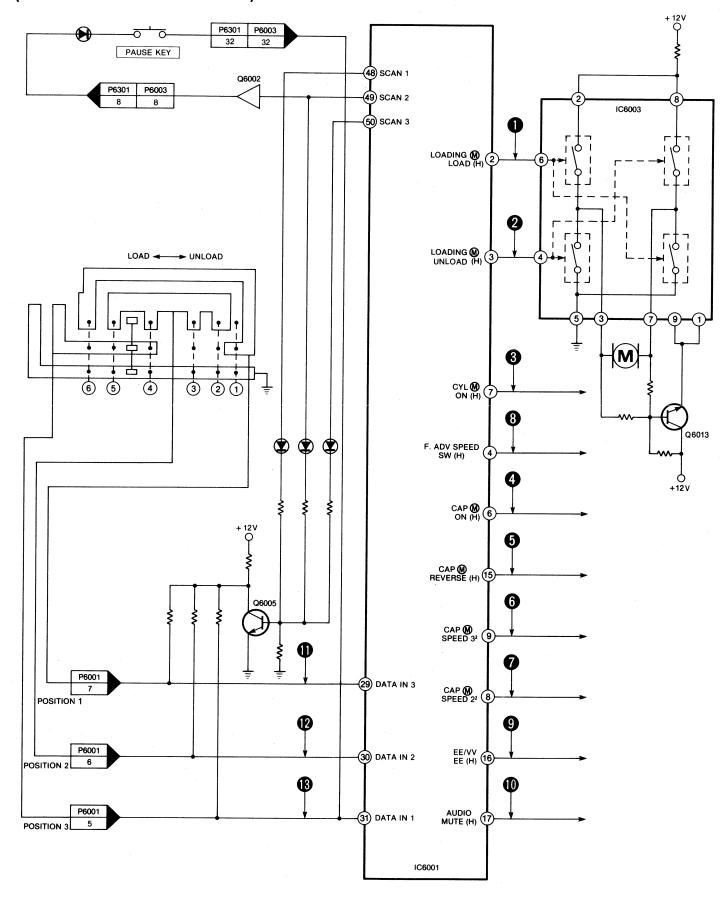
### FF → STOP MODE BLOCK DIAGRAM (SYSTEM CONTROL)



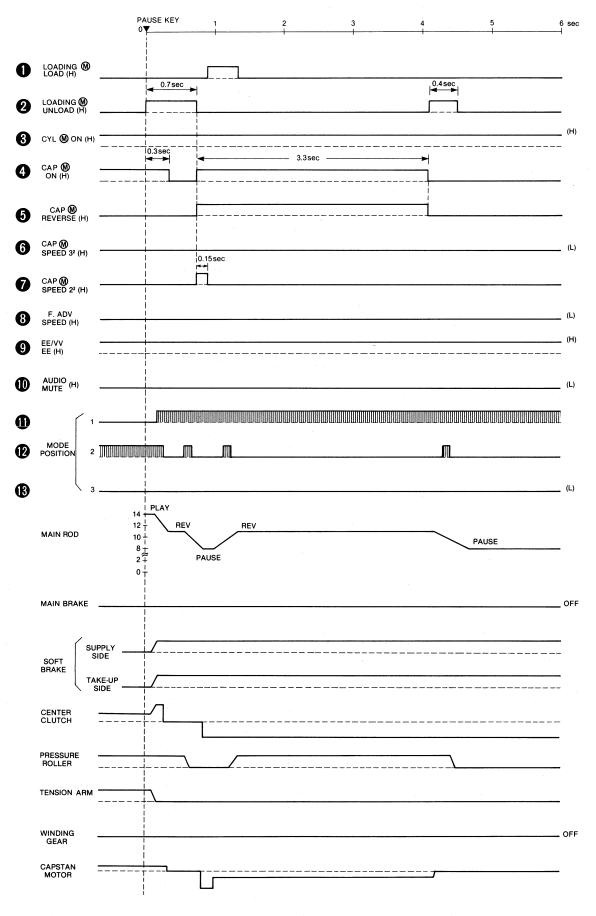
### FF → STOP MODE TIMING CHART



## **REC • PLAY → REC • PAUSE MODE BLOCK DIAGRAM** (SYSTEM CONTROL)

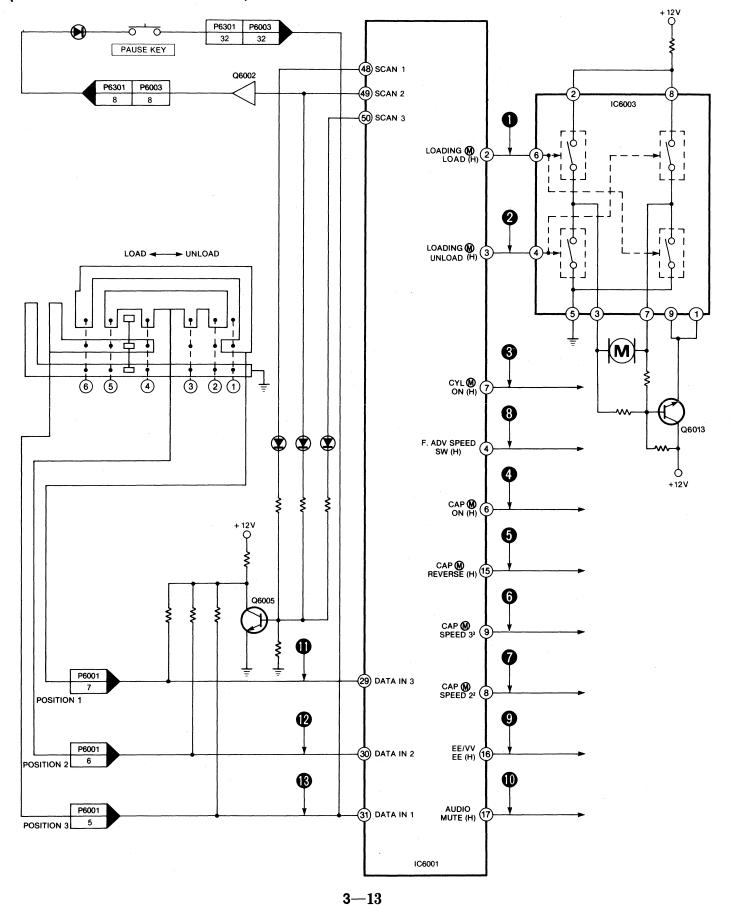


### REC • PLAY → REC • PAUSE MODE TIMING CHART

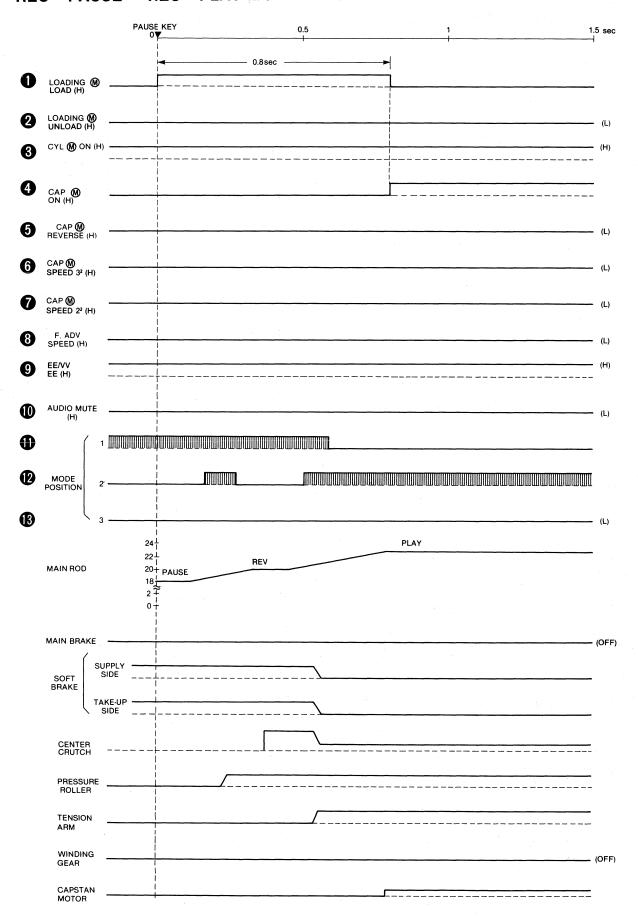


3—12

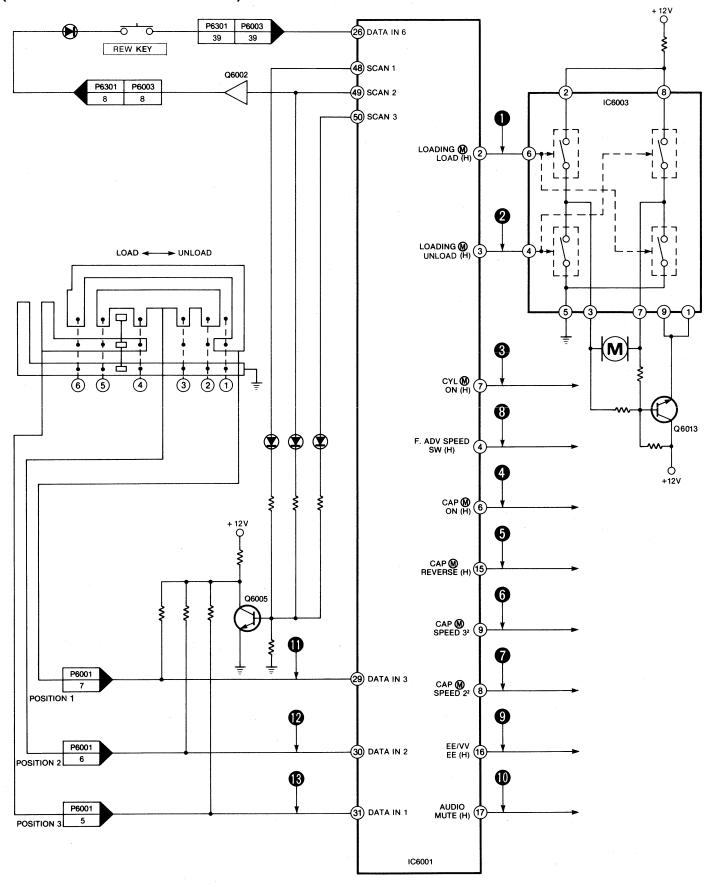
## REC • PAUSE → REC • PLAY MODE BLOCK DIAGRAM (SYSTEM CONTROL)



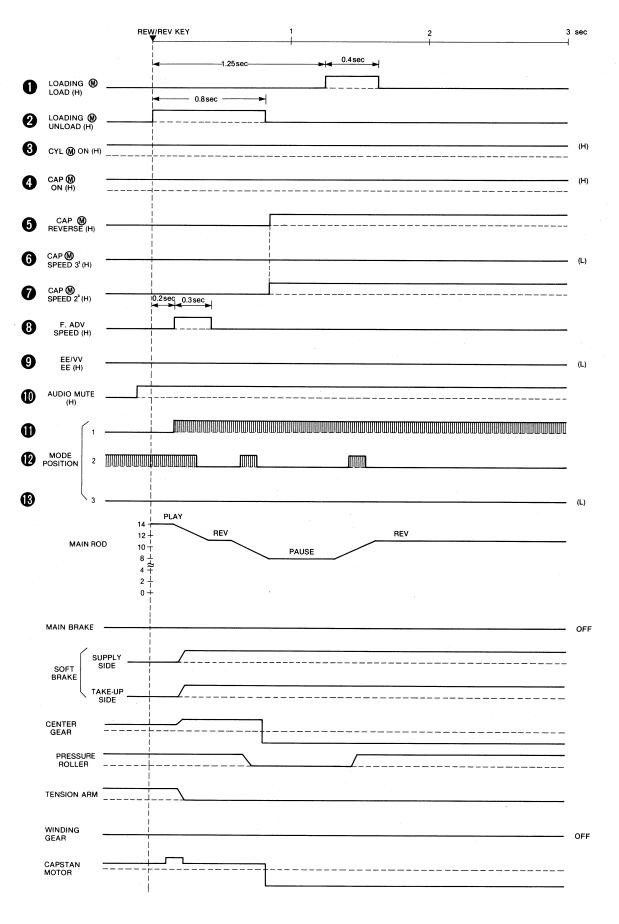
REC • PAUSE → REC • PLAY MODE TIMING CHART



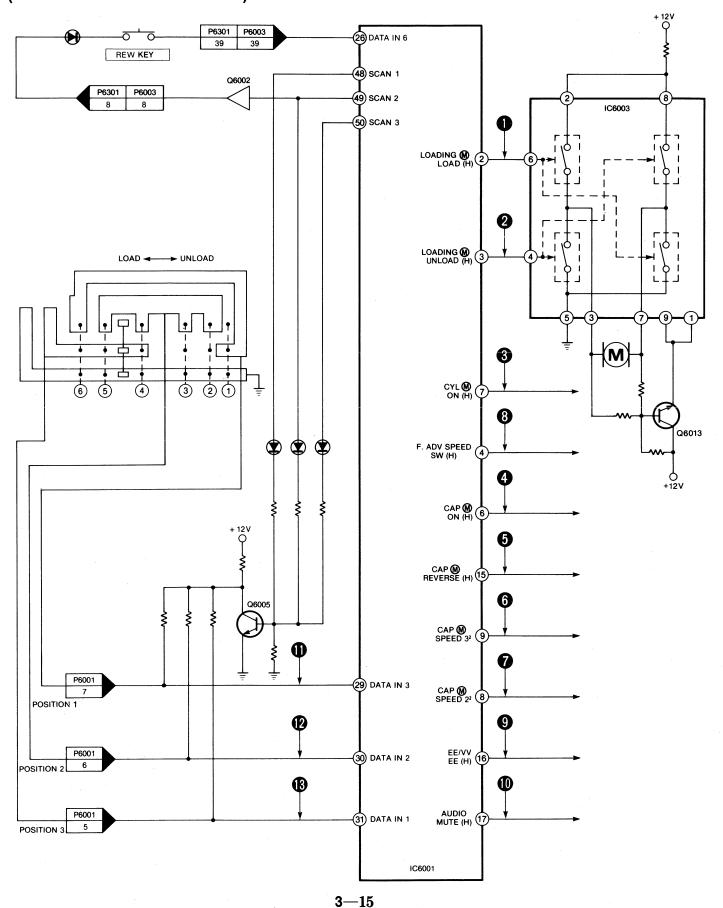
## PLAY → REVIEW MODE BLOCK DIAGRAM (SYSTEM CONTROL)



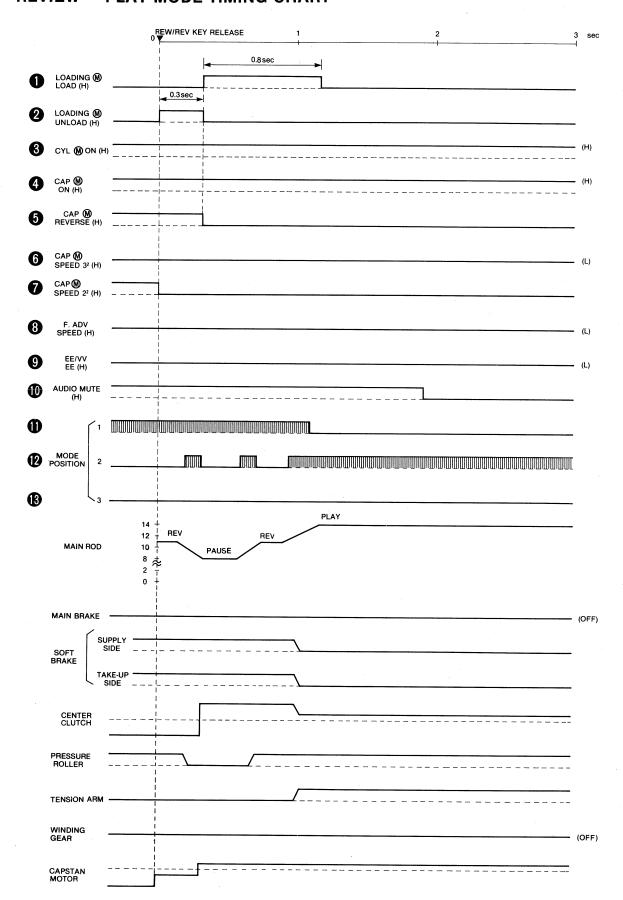
### **PLAY** → **REVIEW MODE TIMING CHART**



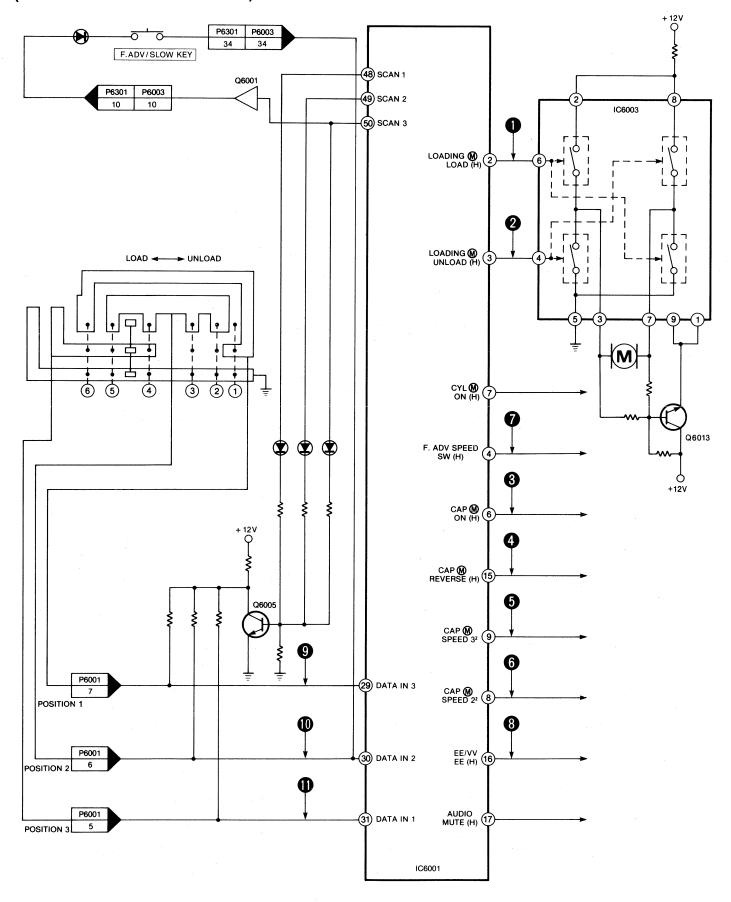
## REVIEW → PLAY MODE BLOCK DIAGRAM (SYSTEM CONTROL)



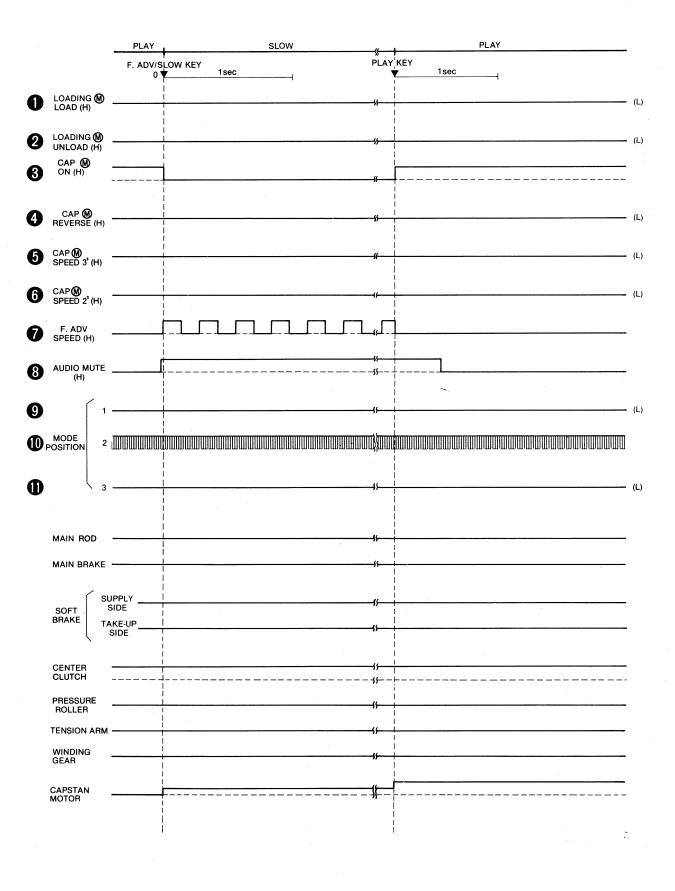
### **REVIEW** → **PLAY MODE TIMING CHART**



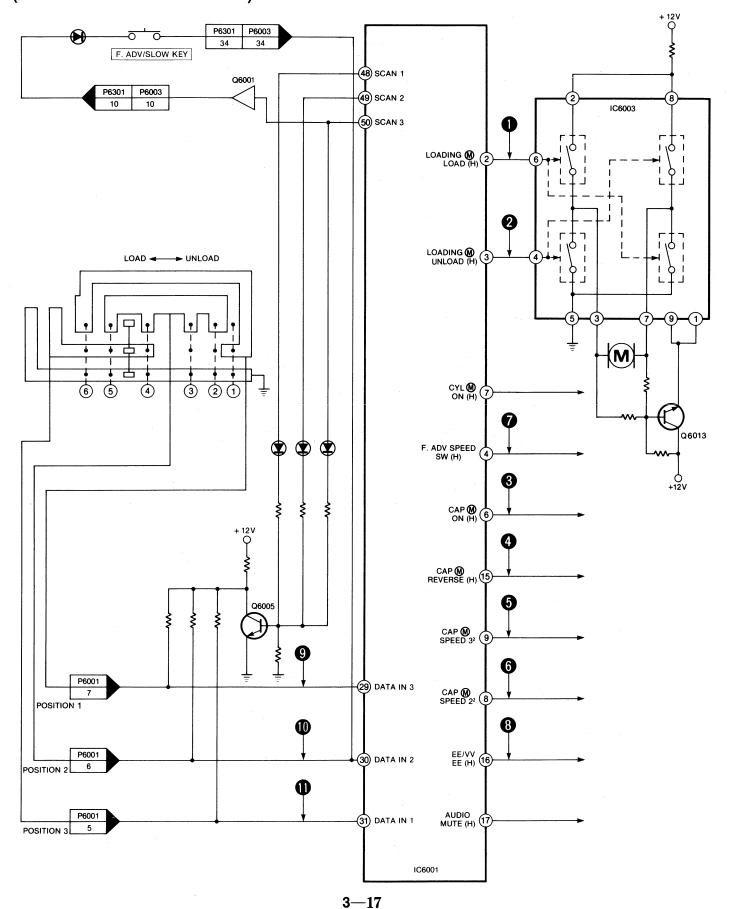
## PLAY → SLOW → PLAY MODE BLOCK DIAGRAM (SYSTEM CONTROL)



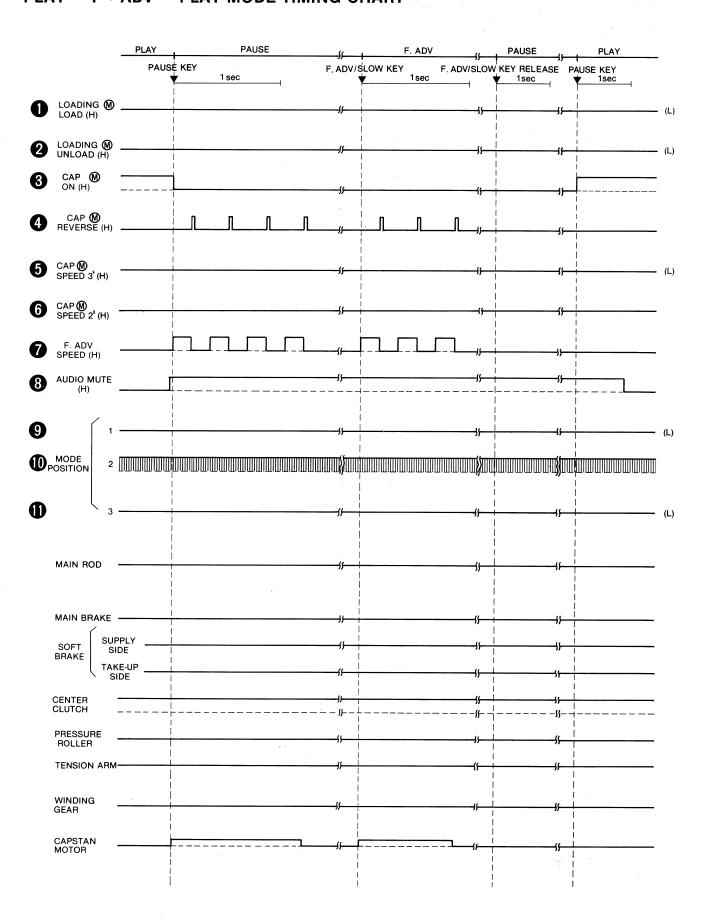
### PLAY → SLOW → PLAY MODE TIMING CHART



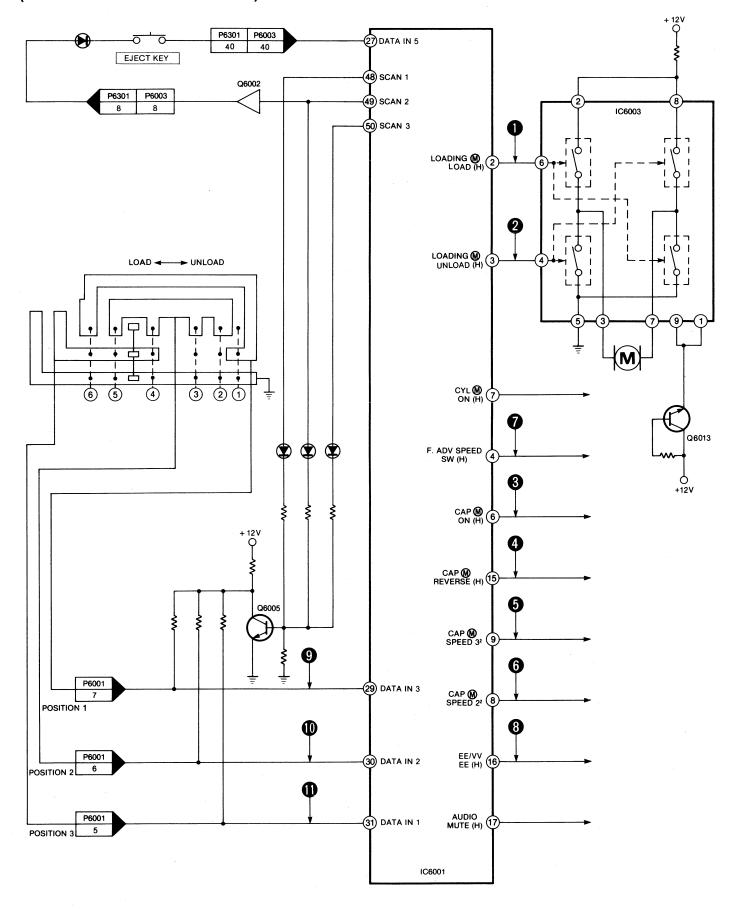
## PLAY → F • ADV → PLAY MODE BLOCK DIAGRAM (SYSTEM CONTROL)



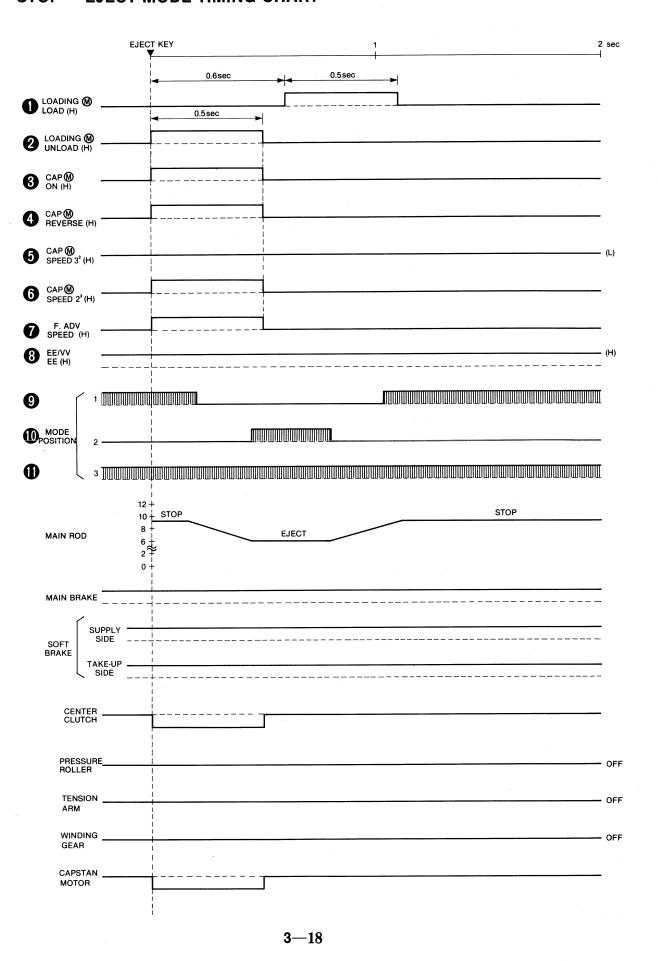
### PLAY → F • ADV → PLAY MODE TIMING CHART



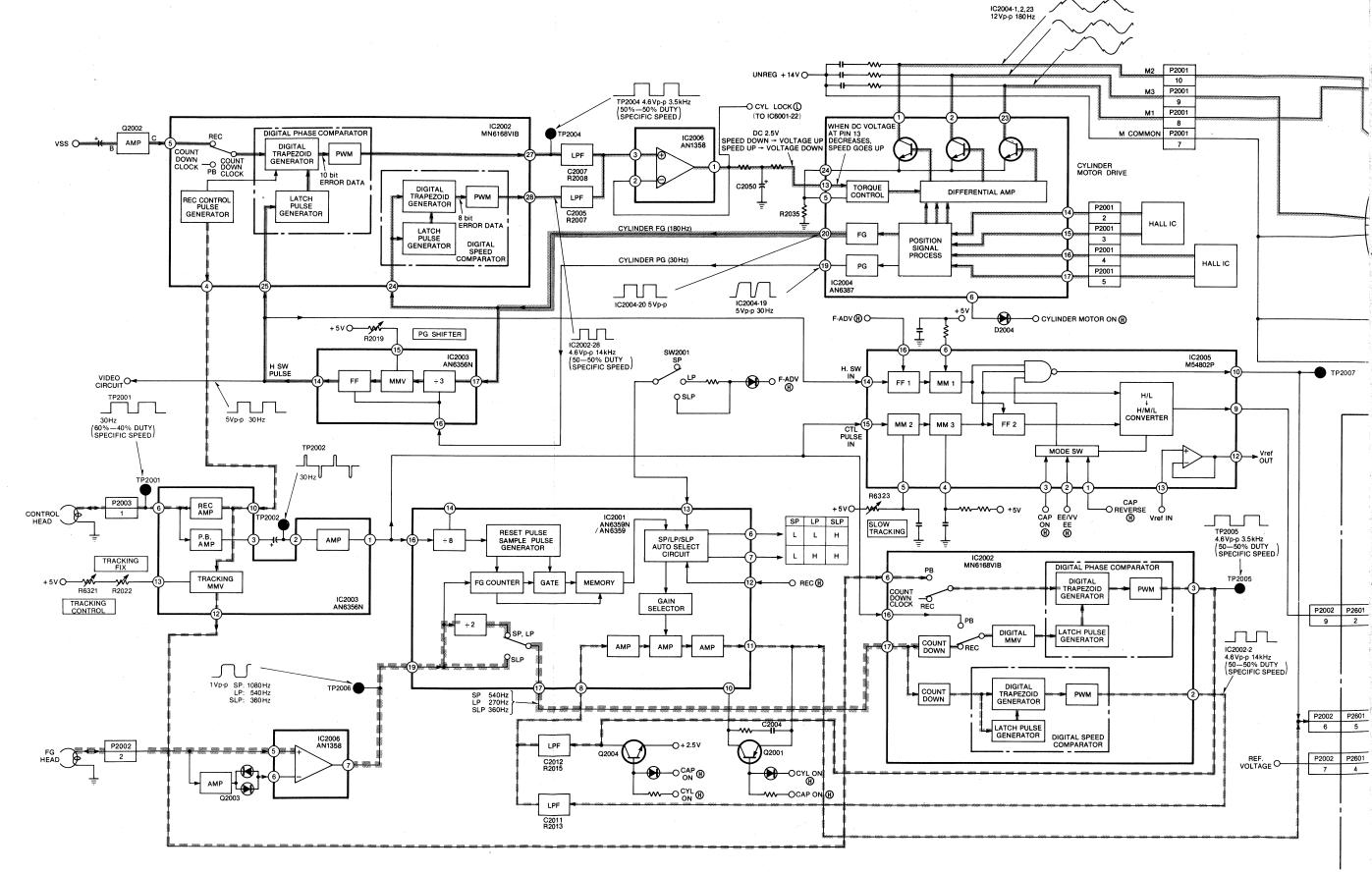
## STOP → EJECT MODE BLOCK DIAGRAM (SYSTEM CONTROL)

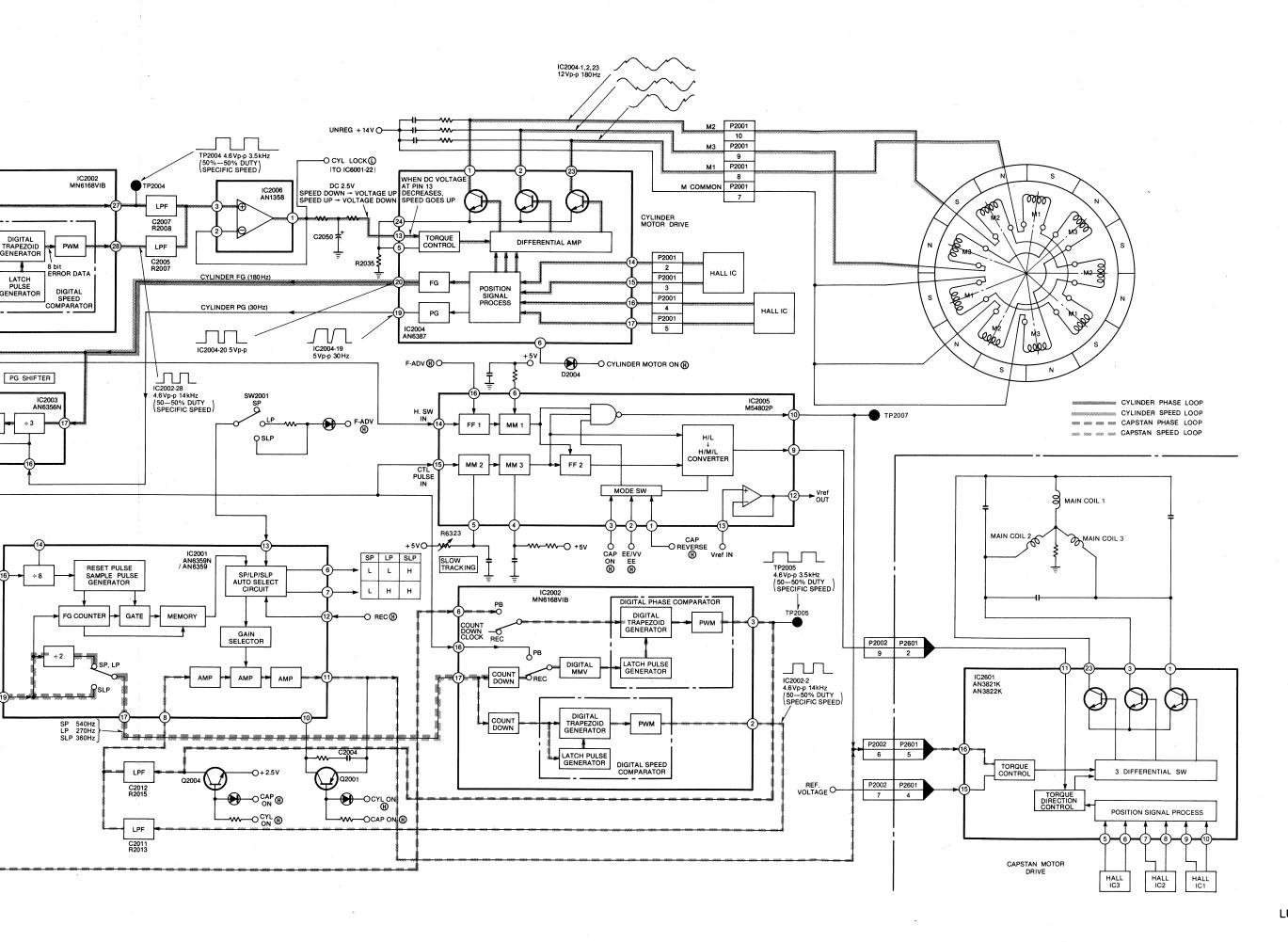


### **STOP** → **EJECT MODE TIMING CHART**

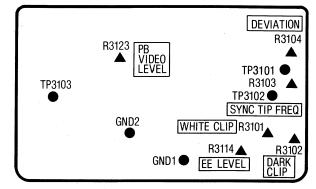


### **SERVO BLOCK DIAGRAM**

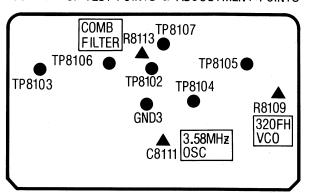




### Luminance C.B.A. LOCATION OF TEST POINTS & ADJUSTMENT POINTS



Chrominance C.B.A.
LOCATION OF TEST POINTS & ADJUSTMENT POINTS

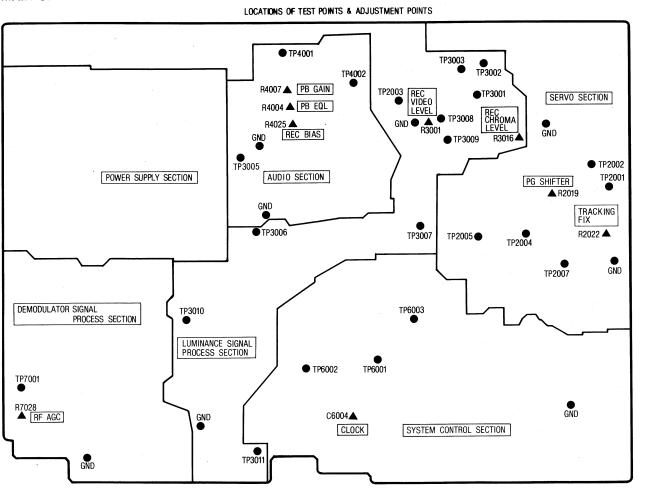


MAIN C.B.A.

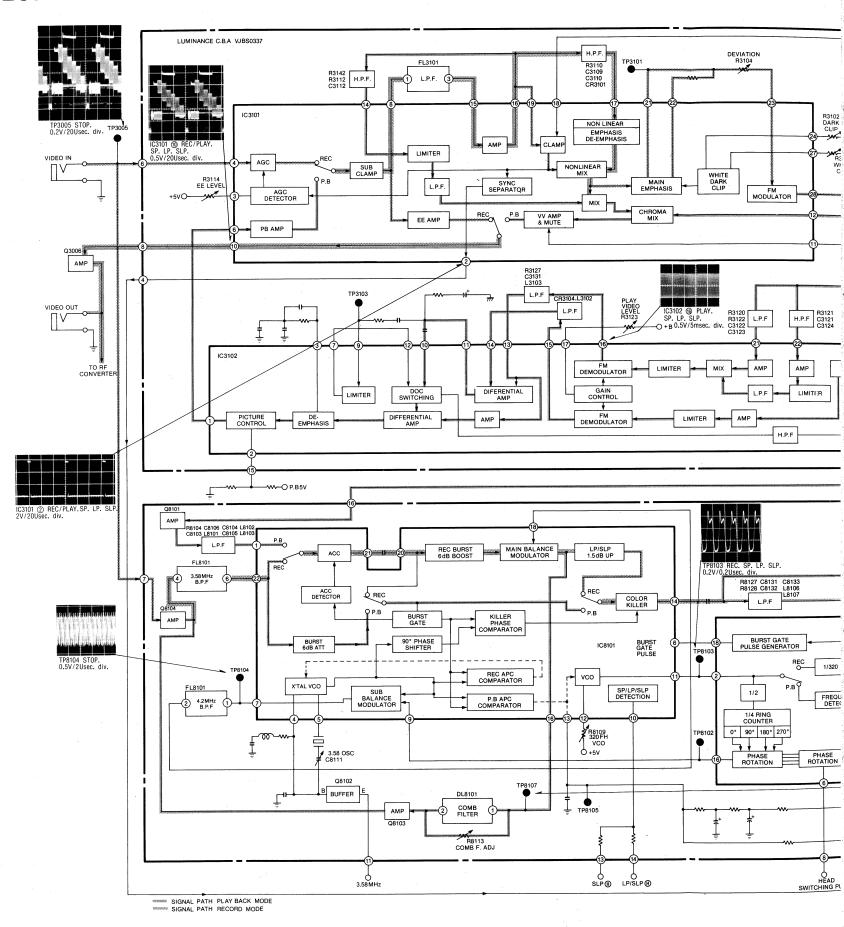
Luminance C.B.A. —

Chrominance C.B.A

MAIN C.B.A.



### **LUMINANCE & CHROMINANCE BLOCK DIAGRAM**



### **LUMINANCE & CHROMINANCE BLOCK DIAGRAM**

/IATION

R3104

P FREQ

R3102 DARK CLIP

POINTS

8109

20FH 'C0

VO SECTION

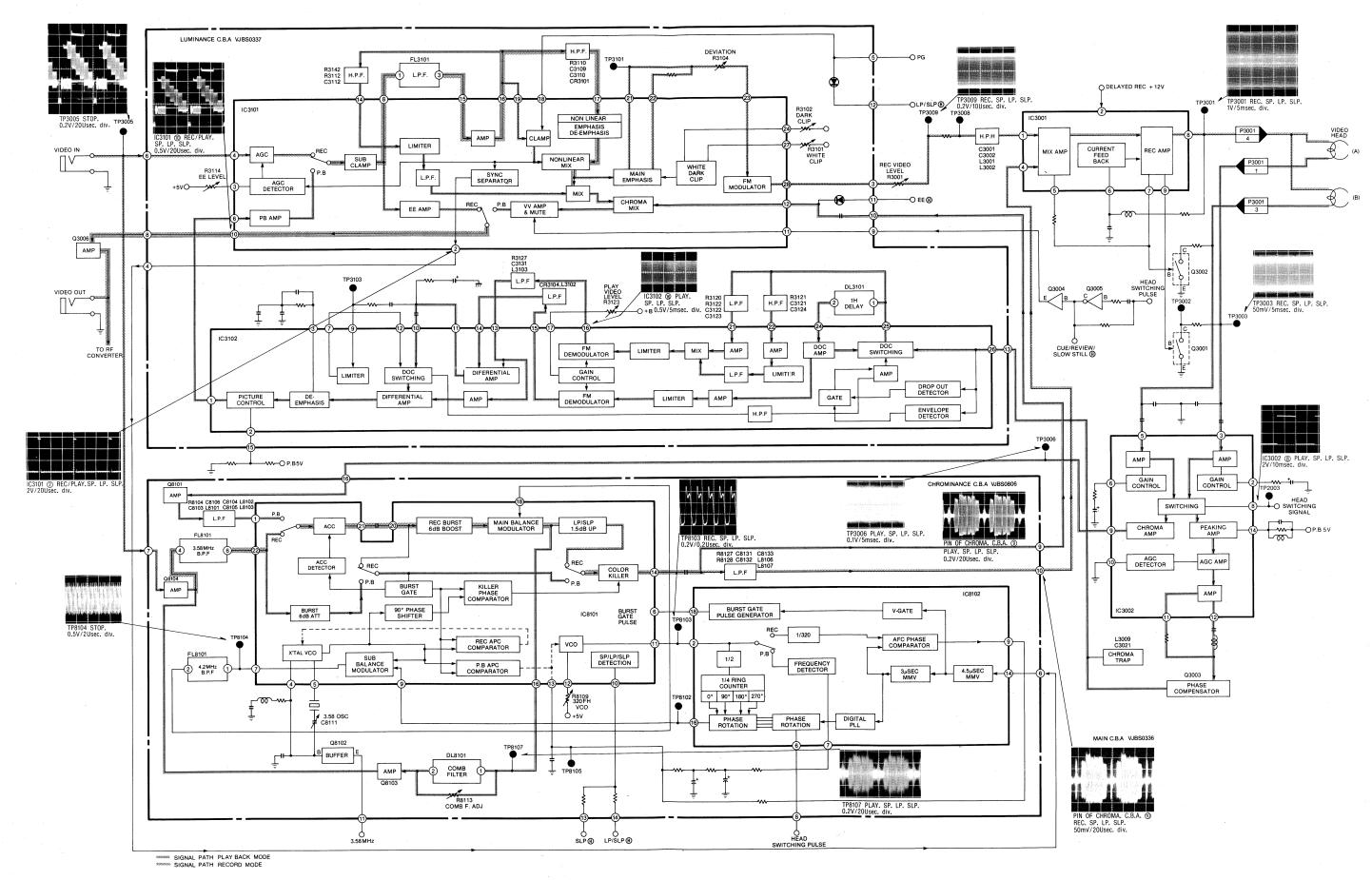
■ TP2002

TRACKING FIX

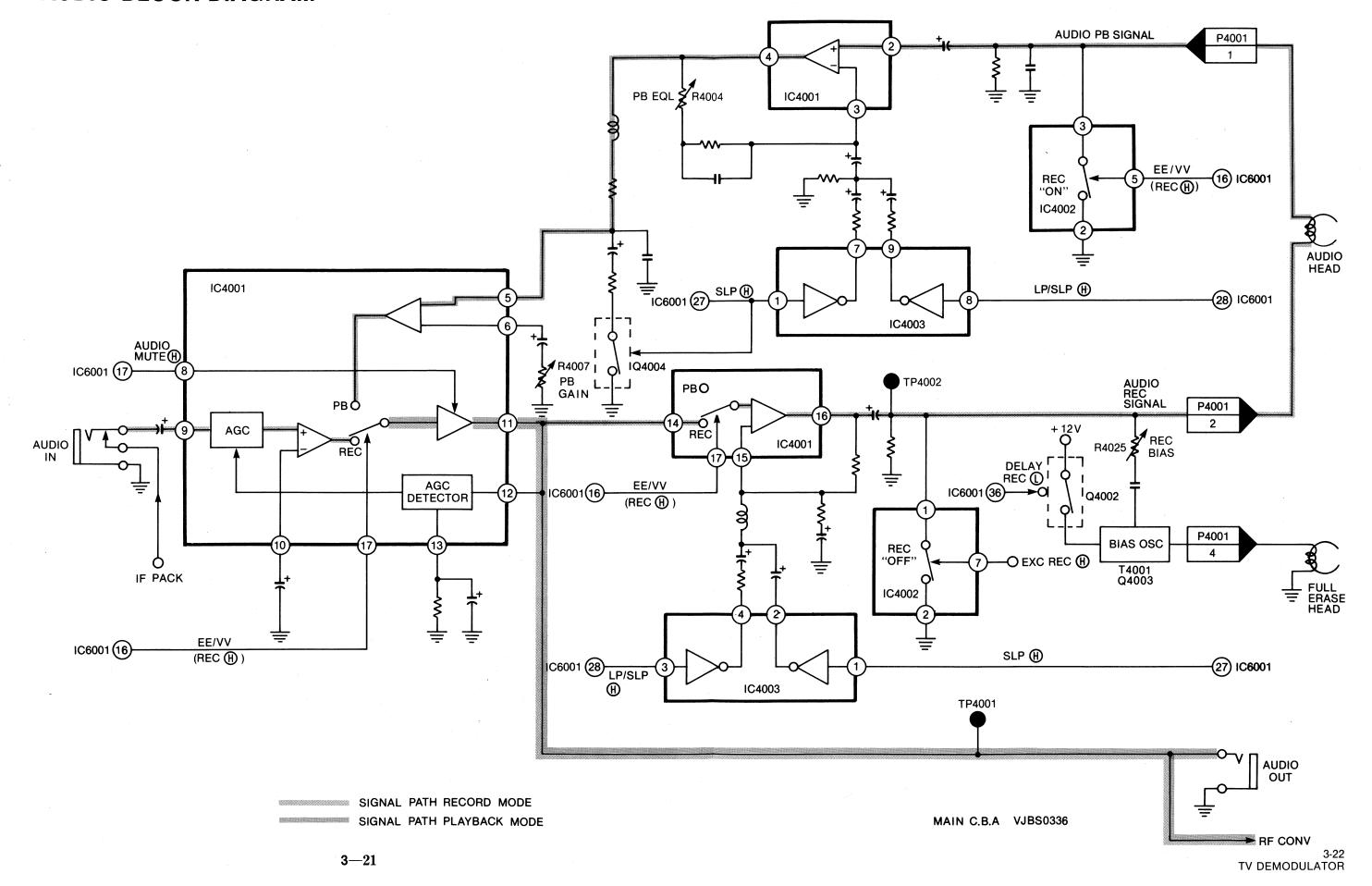
R2022 📥

TP2001

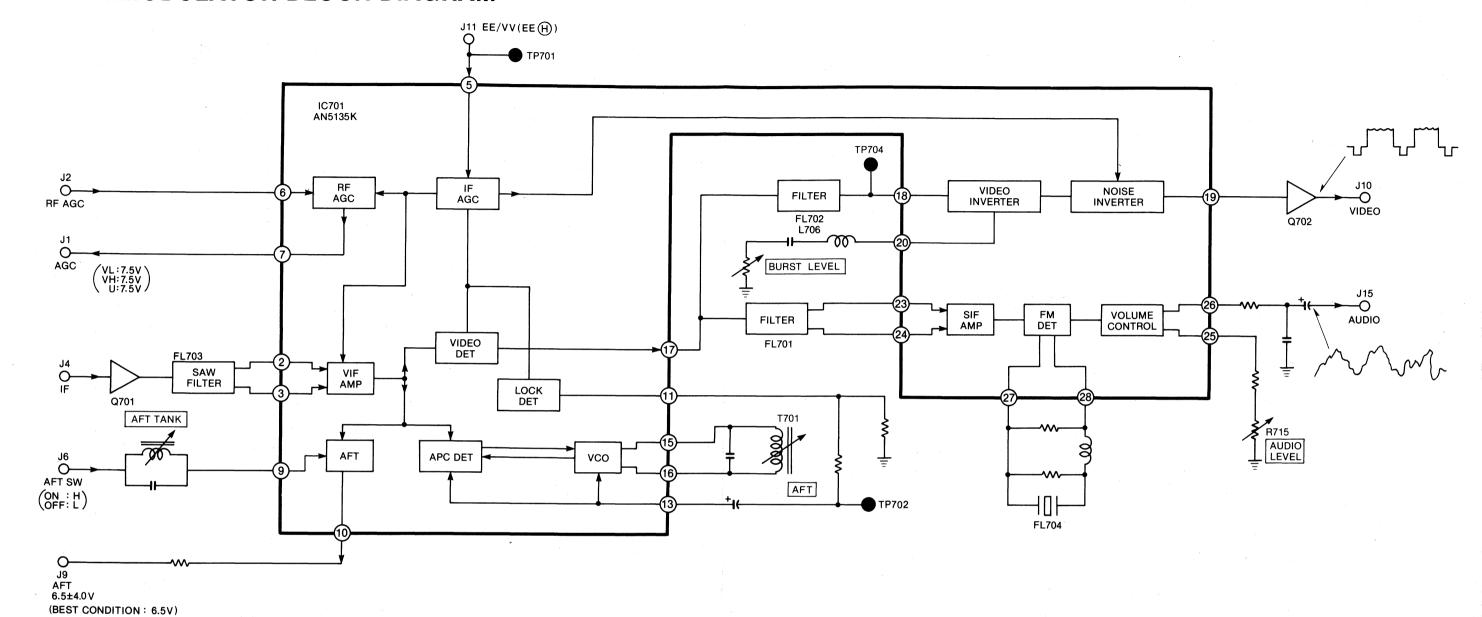
GND

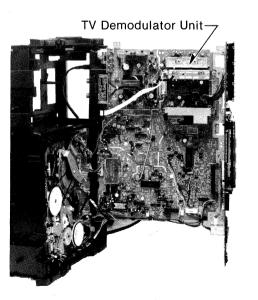


### **AUDIO BLOCK DIAGRAM**

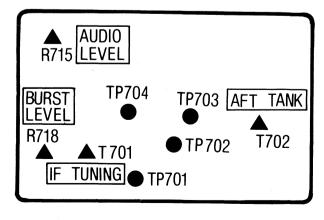


## TV DEMODULATOR BLOCK DIAGRAM

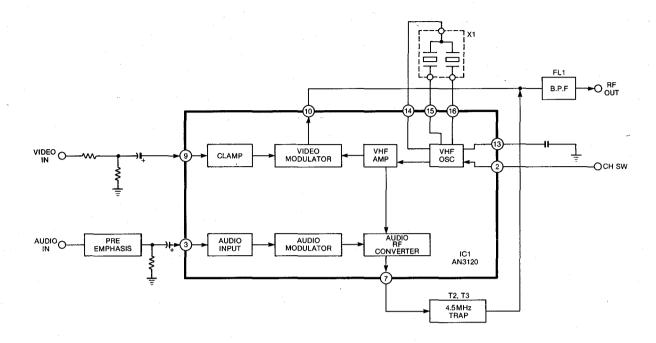




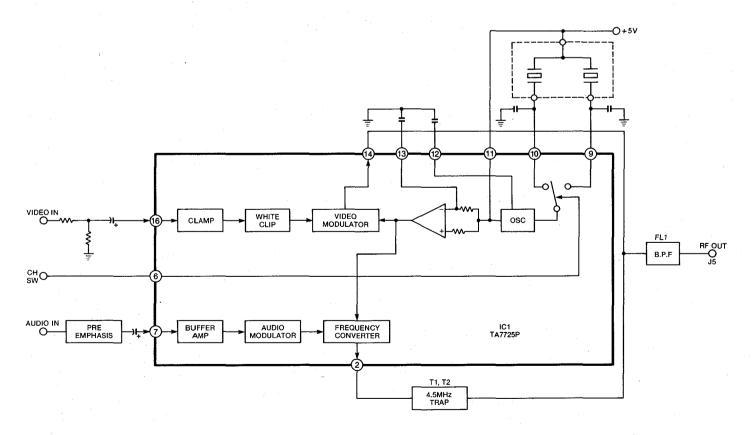
TV Demodulator C.B.A.
LOCATION OF TEST POINTS & ADJUSTMENT POINTS



## RF CONVERTER BLOCK DIAGRAM (VEQS0252/0253)



## RF CONVERTER BLOCK DIAGRAM (VEQS0254/0255)



# Service Manua

Vol. 4

Schematic Diagrams Printed Circuit **Board Diagrams** 

Video Cassette Recorder

Panasonic VHS Omnivision PV-1230 PV-1222 PV-1225

#### **SPECIFICATIONS**

Power Source:

 $120\,\mathrm{V}\,\,\mathrm{AC}\,\pm10\%,\,60\,\mathrm{Hz}\,\pm0.5\%$ 

Power Consumption: Television System:

Approx. 18 watts

EIA Standard (525 lines, 60 fields) NTSC color signal

Video Recording

System: 2 rotary heads, helical scanning system

Luminance: FM azimuth recording Color signal: Converted subcarrier phase

shift recording

Audio Track:

1 track

Tape Format:

Tape width 1/2" (12.7 mm), high density

tape

Tape Speed:

SP mode: 1-5/16 i.p.s. (33.35 mm/s) LP mode: 21/32 i.p.s. (16.67 mm/s) SLP mode: 7/16 i.p.s. (11.12mm/s)

Record/Playback Time: 8 HRS. with 160 min. type tape used in

SLP mode

FF/REW Time:

Less than 6 min. with 120 min. type tape

Heads:

Video: 2 rotary heads Audio/Control: 1 stationary head

Erase: 1 full track erase

1 audio track erase

Input Level:

Video: VIDEO IN Jack (RCA type)  $1.0\,\mathrm{Vp}$ -p,  $75\Omega$  unbalanced

Audio: AUDIO IN Jack (RCA type)

 $-20\,\mathrm{dB}$ ,  $50\,\mathrm{k}\Omega$  unbalanced

TV Tuners: VHF Input: VHF Ch2-Ch13,

 $75\Omega$  unbalanced

UHF Input: Ch14-Ch83,

 $300\Omega$  balanced

Video: VIDEO OUT Jack (RCA type) Output Level:

 $1.0\,\mathrm{Vp}\text{-p}$ ,  $75\,\Omega$  unbalanced

Audio: AUDIO OUT Jack (RCA type)

-6dB,  $600\Omega$  unbalanced

RF Modulated: Ch3/Ch4 switchable,

72 dB µ, (Open Voltage)  $75\Omega$  unbalanced

Video Horizontal

Resolution: Color: more than 230 lines

B/W: more than 230 lines

Audio Frequency

Response: SP mode: 100 Hz~8kHz LP mode: 100 Hz ~ 6kHz (10dB down)

SLP mode: 150 Hz~5kHz

Signal-to-Noise Ratio: Video: SP mode: better than 41 dB

LP mode: better than 41 dB SLP mode: better than 41 dB (Rohde & Schwarz noise meter)

Audio: SP mode: better than 42dB LP mode: better than 40 dB SLP mode: better than 40 dB

Operation

Temperature: 41°F-104°F (5°C-40°C)

Operating Humidity:

10%-75%

Weight:

13.0 lbs. (5.9kg)

Dimensions:

16-15/16 "(W) × 11-5/8 "(D) × 4-1/4 "(H)

 $(430 \,\mathrm{mm} \times 295 \,\mathrm{mm} \times 108 \,\mathrm{mm})$ 

• Remote control unit Accessories Supplied:

• VHF connecting cable •  $300\Omega - 75\Omega$  transformer

• Twin-lead cable

Available Tapes:

1/2 " VHS video cassette tapes

NV-T160 Approx. 1073ft. (327m), 160,

320, or 480 min

NV-T120 Approx. 810 ft. (247 m), 120, 240,

or 360 min

NV-T60 Approx. 417ft. (127m), 60, 120,

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

anasonic

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of Puerto Rico, Inc. Ave, 65 De Infanteria, KM 9.7 Victoria Industrial Park Carolina, Puerto Rico 00630

Panasonic Sales Company, Division of Matsushita Electric

Matsushita Electric of Canada Limited 5770 Ambler Drive, Mississauga, Ontario, L4W 2T3

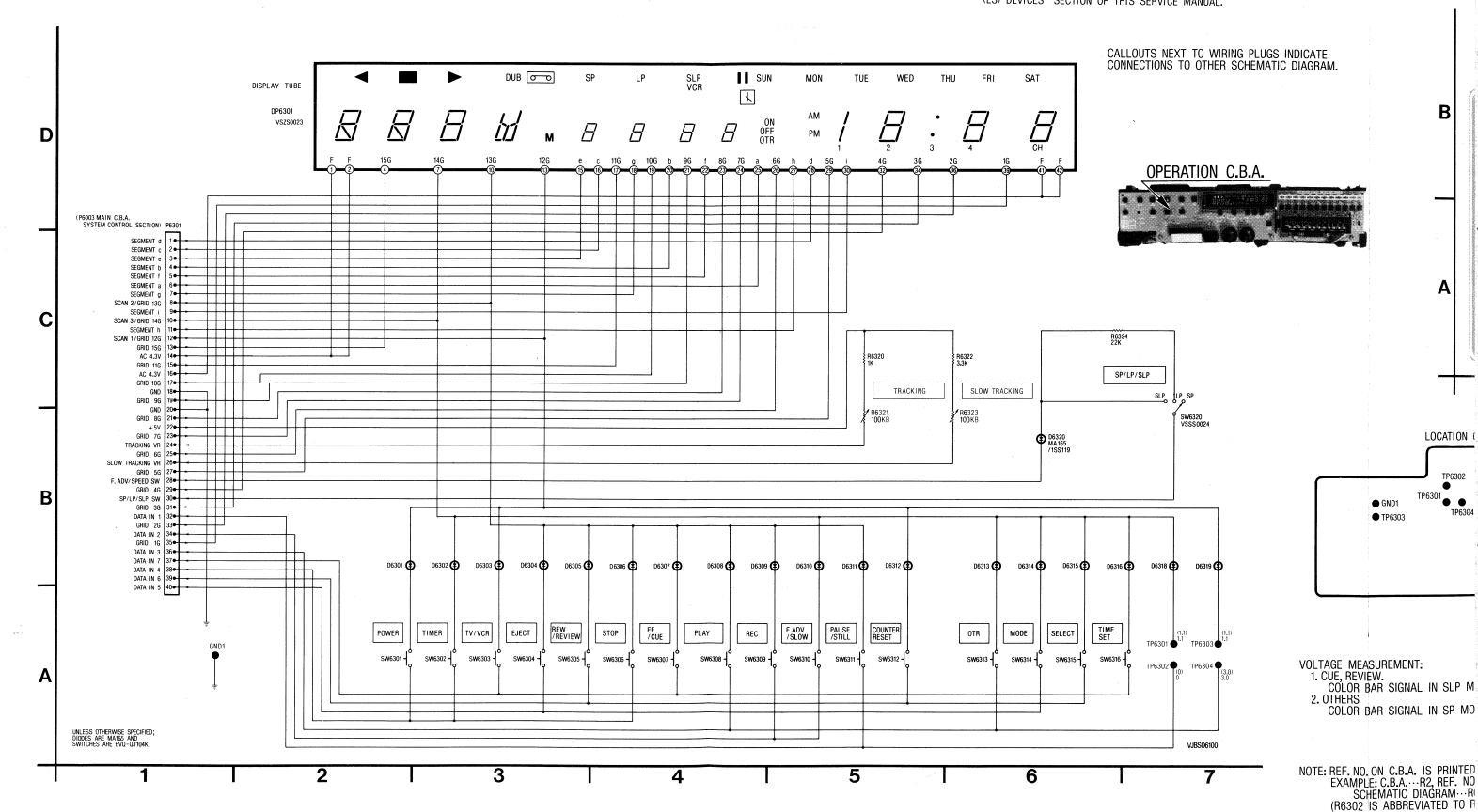


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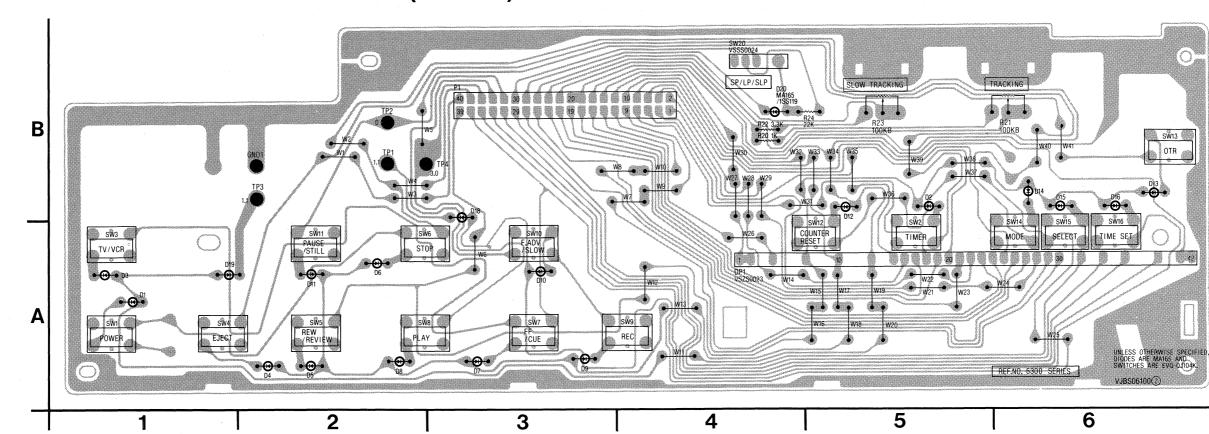
#### I IMPORTANT SAFETY NOTICE I

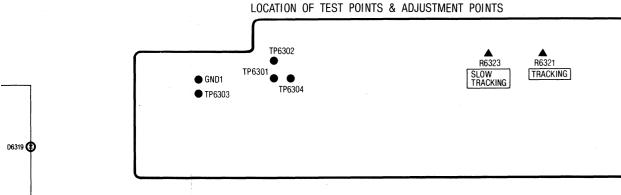
There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.



**OPERATION C.B.A. VEPS06100A (PV-1230,PV-1225)** VEPS06100C (PV-1222)

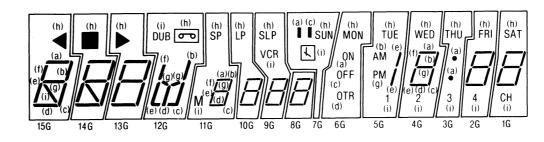
VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.





REF.NO.	TP6301	TP6302	TP6303	TP6304
STOP	1.2	3.1	1.2	0
REC	1.1	0	1.1	3.0
PLAY	1.1	0	1.1	3.0
CUE	0.4	0	1.3	3.0
REV	1.2	3.0	1.2	0

#### **DP6301 DISPLAY TUBE CONNECTION**



PIN NO.	CONNECTION
1	FILAMENT
2	FILAMENT
3	
4	GRID 15G
5	
6	
7	GRID 14G
8	
9	
40	0010 400

PIN NO.	CONNECTION		PIN NO.	CONNEC
11		[	21	GRID 90
12			22	SEGMEN
13	GRID 12G		23	GRID 80
14			24	GRID 70
15	SEGMENT e		25	SEGMEN
16	SEGMENT c		26	GRID 60
17	GRID 11G		. 27	SEGMEN
18	SEGMENT g	[	28 -	SEGMEN
19	GRID 10G		29	GRID 50
20	SEGMENT b		30	SEGMEN

VO.	CONNECTION
Т	
	GRID 4G
	GRID 3G
Т	
	GRID 2G
	GRID 1G
	FILAMENT
	FILAMENT

63	01		
1	SEGMENT d	21	GRID 8G
2	SEGMENT c	22	+5V
3	SEGMENT e	23	GRID 7G
4	SEGMENT b	24	TRACKING VR
5	SEGMENT f	25	GRID 6G
6	SEGMENT a	26	SLOW TRACKING VR
7	SEGMENT g	27	GRID 5G
8	SCAN 2/GRID 13G	28	F.ADV/SPEED SW
9	SEGMENT i	29	GRID 4G
0	SCAN 3/GRID 14G	30	SP/LP/SLP SW
1	SEGMENT h	31	GRID 3G
2	SCAN 1/GRID 12G	32	DATA IN 1
3	GRID 15G	33	GRID 2G
4	AC 4.3V	34	DATA IN 2
5	GRID 11G	35	GRID 1G
6	AC 4.3V	36	DATA IN 3
7	GRID 10G	37	DATA IN 7
8	GND	38	DATA IN 4
9	GRID 9G	39	DATA IN 6
0.	GND	40	DATA IN 5

SYSTEM CONTROL CIRCUIT IC6001 MATRIX CHART, SERVO/SYSTEM CONTROL CIRCUIT **VOLTAGE CHART** 

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A...R2, REF. NO. 6300 SERIES SCHEMATIC DIAGRAM...R6302 (R6302 IS ABBREVIATED TO R2)

1. CUE, REVIEW. COLOR BAR SIGNAL IN SLP MODE.

COLOR BAR SIGNAL IN SP MODE.

VOLTAGE MEASUREMENT:

R SEMICONDUCTOR DEVICES ARE

TO WIRING PLUGS INDICATE OTHER SCHEMATIC DIAGRAM.

TION C.B.A.

TP6303

ORE REQUIRE THE SPECIAL HE "ELECTROSTATICALLY SENSITIVE

REF.NO.					,					IC2	1001		~~~	<del></del>						
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0	3.9	4.0	0	2.1	0	1.7	4.7	0.6	4.9	5.0	0.1	5.0	0	2.0	0
REC	0	0	0	0	0	0.1	0	2.6	2.6	0	2.5	4.7	4.8	4.9	4.9	2.8	2.5	4.9	2.6	0
PLAY	0	0	0	0	0	0	0	2.7	2.7	2.7	2.5	0.3	4.8	4.9	5.0	0.1	2.5	4.9	2.6	0
CUE	0	0	0	0	0	3.9	4.0	2.6	2.6	2.8	2.5	0.3	4.8	4.9	4.9	0.4	2.4	5.0	2.6	0
REV	4.9	0	0	0	0	0	3.9	0	2.6	2.5	2.4	0.3	4.8	4.9	5.0	0.2	2.4	4.9	2.6	0
F.ADV.	0	0	0	0	0	3.9	3.9	1.3	0	2.6	2.2	0.3	4.8	0	5.0	0.1	4.1	4.9	2.6	0
SL0W(1/4)	0	0	0	0	0	3.9	4.0	1.2	2.6	2.6	2.1	0.3	4.8	0	5.0	0.1	4.1	4.9	2.6	0
REF.NO.								,		IC20	002									
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0.2	2.5	3.0	4.7	2.1	0	0	4.7	4.0	4.0	5.0	0	4.9	0.1	0.1	5.0	.0	. 0	0
REC	0	2.5	2.4	3.0	4.8	2.2	4.3	0	4.7	0	0	5.0	0	5.0	1.6	2.8	2.5	0	0	0
PLAY	0	2.5	2.4	2.7	4.8	2.1	0	0	0.3	0	0	5.0	0	4.9	1.6	0	2.5	0	0	0
CUE	0	2.5	2.4	2.7	4.7	2.1	0	0	0.3	3.9	4.0	4.9	0	5.0	1.6	0.4	2.4	0	4.9	0
REV	0	2.5	2.4	2.7	4.8	2.0	0	0	0.3	3.9	0	4.9	0	4.9	0.1	0.3	2.4	4.9	4.9	0
F.ADV.	0	0.4	2.9	2.7	4.8	2.1	0	0	0.3	3.9	3.9	4.8	0	5.0	1.6	0.1	4.6	0	0	0
SLOW(1/4) REF.NO.	. 0	0.4	2.8	2.7	4.7	2.1	0	0	0.3	3.8	3.9 002	4.9	0	5.0	1.0	0.1	4.2	0	0	0
MODE	21	22	23	24	25	26	27	28	T	102	002	I						Γ		
STOP	0	4.9	0	4.9	4.9	0	2.5	0.2				-					1			
REC	0	5.0	0	0	2.4	0	2.6	2.5	-							<u> </u>	-			
PLAY	0	5.0	0	0	2.5	-0	2.6	2.6		-			-							
CUE	0	0	0	3.9	2.5	0	2.7	2.5	-											
REV	0	4.9	0	3.8	2.5	0	2.6	2.6												
F.ADV.	0	4.9	0	3.8	2.5	0	2.6	2.5												
SL0W(1/4)	0	4.9	0	3.8	2.5	0	2.6	2.5												
REF.NO.			•							IC2	003 -	-					•			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
STOP	0	0.5	1.8	0	2.5	2.5	0	2.5	0	3.0	5.0	2.1	1.2	4.9	4.7	4.9	4.9	0		
REC	0	-0.4	2.4	0	2.5	2.5	0	2.7	4.3	3.0	5.0	2.3	1.1	2.5	2.8	4.8	3.8	0		
PLAY	0.1	0	1.8	0	2.5	2.5	0	2.5	0	2.7	4.9	2.1	1.0	2.5	2.8	4.8	3.8	0		-
CUE	0.4	0.6	1.9	0	2.5	2.5	0	2.5	0	2.7	4.9	2.1	1.0	2.5	2.8	4.8	3.8	0		
REV	0	0	1.9	0	2.5	2.5	0	2.5	0	2.8	5.0	2.0	1.0	2.5	2.8	4.8	0	0		
F.ADV.	0	0.4	1.9	0	2.5	2.5	0	2.5	0	2.7	5.0	2.1	1.0	2.5	2.8	4.8	3.8	0		
SLOW(1/4) REF.NO.	0 -	0.4	1.9	0	2.5	2.5	0	2.5	0	2.7	4.9	2.1	1.0	2.5	2.8	4.8	3.8	0		
					-						004	10	40			- 10				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP REC	14.5 0	14.5	2.6	2.4	. 0	0.9	12.4	0.1	12.1	0.7	2.1	0	1.1	0.5	0.7	1.7	1.9	0.2	4.9	4.9
PLAY	14.2	14.0 14.1	2.6	2.4	0	2.0	12.4	0.1	11.2	0.9	2.6	0	2.6	0.7	0.6	1.8	1.8	3.1	4.8	3.8
CUE	14.2	14.1	2.6	2.4	0	2.0	12.4	0.1	11.3	0.9	2.7	0	2.6	0.7	0.6	1.9	1.9	3.1	4.0	3.8
REV	14.2	14.2	2.6	2.4	0	2.0	12.4	0.1	11.3	0.8	2.6	14.2	2.6	0.7	0.6	1.9	1.9	3.1	4.4	3.8
F.ADV.	14.2	14.2	2.6	2.4	0	2.0	12.4	0.1	11.3	0.8	2.6	14.2	2.6	0.7	0.6	1.8	1.8	3.1	4.8	3.8
SLOW(1/4)	14.2	14.2	2.5	2.4	0	2.0	12.4	0.1	11.3	0.8	2.6	0	2.6	0.7	0.6	1.8	1.8	3.1	4.8	3.8
REF.NO.		IC 2										1C21					-			
MODE	21	22	23	24	1	2	3	4	5 .	6	7	8	9	10	11	12	13	14	15	16
ST0P	14.5	*	14.5	. 0	0	4.9	0	0	0.2	0	0	5.0	2.1	1.7	*	2.1	2,1	4.9	0.1	0
REC	14.2	*	14.0	0	0	4.8	0	0	0.1	0	0	4.9	0	2.5	*	2.7	2,6	2.4	2.8	0
PLAY	14.4	*	14.1	0	0	0	4.9	0	0.1	0	0	5.0	0	2.5	*	2.6	2.7	2.5	0.1	0
CUE	14.4	*	14.2	0	0	0	4.9	0	0.1	0	0	4.9	0	2.5	*	2.7	2.7	2.5	0.4	0 -
REV	14.4	*	14.2	0	4.9	0	4.9	0	0.1	0	0	4.9	4.7	0	*	2.6	2.6	2.5	0.3	0
F.ADV.	14.4	*	14.2	0	0	0	0	0.1	0.2	0.1	0	4.9	0.2	2.0	*	2.6	2.7	2.5	0	2.3
SLOW(1/4)	14.4	*	14.2	0	0	0	0	0.1	0.2	0.1	0	4.9	0	2.0	*	2.7	2.6	2.5	0.1	2.5
REF.NO.										IC2	006									
MODE	1	2	3	4	5	6	7	8		-										
STOP	1.1	1.1	1.1	0	2.5	2.5	2.5	5.0												<u> </u>
REC	2.5	2.6	2.6	0	2.5	2.5	2.5	5.0			-									
PLAY	2.6	2.6	2.6	0	2.5	2.5	2.5	5.0												<b>——</b>
CUE	2.6	2.6	2.6	0	2.5	2.5	2.5	5.0		-	-						· ·			
REV	2.6	2.6	2.6	0	2.5	2.4	2.5	5.0												
F.ADV.	2.6	2.5	2.4	0	2.5	2.4	2.6	4.9												<del></del>
SL0W(1/4)	2.6	2.6	2.6	0	2.5	2.5	2.6	4.9	L		L						L		L	

N 855 110 1								· · · · · · · · · · · · · · · · · · ·		<del></del>										
REF.NO.	<u> </u>			r .						IC6			10	14	45	10	47	40		
MODE	1 .	2	3	4	5	6	7	8	9	10	. 11	12	13	4.7	15 0	16	17	18	19	20
STOP	0	0	0	0	4.9	0	0	0	0	3.7	5.0	4.9	4.9			4.9	0	0.6	2.5	1.9
FF	0	0	0	4.9	4.9	4.8	0	4.9	0	3.7	4.9	4.9	4.9 4.7	0	0 4.9	4.8	0	0.5	2.5	1.8
REW	0	0	0	4.8	4.9	4.7	0	0	0	3.7	4.9	4.9	0	0	0	4.8	0	0.5	2.4	1.8
REC	0	0	0	0	4.9	0	4.9	0	0	3.7	4.9	4.9		0	0	0	0	0.6	2.4	1.9
PLAY	0	0	0	0	4.9	4.9	0	0	0	0	4.9	4.9	4.9	0	0	0		0.6	2.4	1.9
CUE	0	0	0	0	4.9	4.9	4.9	0	4.9	3.7	4.9	4.9	4.9	0		0	4.9	0.6	2.4	1.8
REV	0	0	0	0	4.9	4.9	4.9	0	4.9	3.7	4.9	4.9	4.9	0	4.9 0	0	4.9	0.6	2.4	1.8
F.ADV.	0	0	0	2.2	0	0	4.8	0	0	3.7	4.9	4.9	4.9	0		0	4.9	0.6	2.4	1.8
SLOW(1/4) REF.NO.	0	0	0	0	0	0	0	0	0	3.7 IC6	4.9	4.9	4.9	- 0	0	U	4.9	0.6	2.4	1.9
		- 00			٥٢	00	0.7	00	20		31	32	33	34	35	36	37	38	20	40
MODE	21	22	23	24	25	26	27	28	29	30	3.1	0.1	0.2	4.7	0	11.9	-28.3	-28.3	39	40
STOP	3.5	2.3	4.9	1.0	0	0	3.1	3.3	0	3.1 3.0	3.1	2.0	0.2	4.7	0	11.8	-28.3	-28.3	-28.3 $-28.3$	-28
FF	3.5	2.3	4.9	0.9	0	0	0.5	0.5	0							10.3				<u>-28</u>
REW	3.4	2.2	4.9	0.9	0	0	0.5	0.5	0	3.0	3.0	2.0	0.2	4.8	0	0.3	-28.3 $-28.2$	-28.3 0	-28.3	-28
REC	3.5	3.0	4.9	1.0	0	0	0.5	0.5	3.0	0.5	0	<u>×</u>	0.2	0.3	0.2	★	<b>−</b> 20.2	*	-28 <b>.</b> 2	-28 -28
PLAY	3.5	0	4.9	1.0	0	0		0.5	3.0	0.5	0	— <del>~</del>	0.1	0.3	3.9	11.9	-28.4	-28.4	-28.4	-28 -29
CUE	3.5	3.0	0.9	1.0	0	0	3.0	3.3	0	0.5	3.0	_ <del>_×</del> _	0.2	0.3	0.2	11.9	-28.5	-28.4	-28.4	-28 -28
REV	3.5	2.2	0.3	0.9	0		3.0	3.2			0	0.1	0.2	0.3	3.9	11.9	-28.4	-28.4	-28.4	-28
F.ADV.	3.5	3.0	2.7	0.9	0	0	3.0	3.2	3.0	0.5	0	4.2	0.2	0.3	3.9	11.9	-28.4	-28.4	-28.4	-28 -20
SLOW(1/4) REF.NO.	3.5	3.0	4.9	0	0	0	3.0	3.2	3.0	U.5 IC6		4.4	0.2	0.0	3.8	11.9	20.4	20.4	20.4	-28
		40	40	144	AF	40	47	40	49	50	51	52	53	54	55	56	57	58	59	60
MODE	41	42	43	44	45	46	-28.3	48 -26.4	-26.4	-26.4	-26.7	★	-28.0	★	★	*	*	★	★	★
STOP	-28.3	-28.3	-28.3	-28.3	-28.3	-28.3 -28.4	-28.3	-26.4	-26.4	-26.4	-26.7	<del></del> _	-28.0	<u></u> ★	*	*	*	*	<u>^</u>	*
FF	-28.3	-28.4	-28.4	-28.3	-28.4					-26.3	-26.7	<u></u> ★	-24.9	<u>-</u> *	<u> </u>	*	*	*	<del>*</del> _	*
REW	-28.3	-28.3	-28.3	-28.2	-28.3	-28.3	-28.3	-26.4	-26.3 -26.3	-26.3	-26.6	<del>^-</del>	-24.9	<del></del>	*	*	*	*	<del></del> _	*
REC	-28.2	-28.2	-28.2	-28.2	-28.2 -28.4	-28.2	-28.2 -28.4	-26.3	-26.3	-26.4	-26.7	<del></del>	-28.4	<del></del> *	*	*	*	*	<u>^</u>	*
PLAY	-28.3	-28.3	-28.3 -28.4	-28.3 -28.3	-28.4 -28.4	-28.4 -28.4	-28.4	-26.4 $-26.4$	-26.4	-26.4	-26.7	<del></del>	-24.8	<del></del>	*	*	*	*	<del>*</del>	
CUE	-28.4	-28.4		-28.4	-28.4	-28.4	-28.4	-26.5	-26.5	-26.5	-26.8	<del>*</del>	-24.9	<u></u> ★	*	*	*	*	*	*
F.ADV.	-28.5 -28.4	-28.4 -28.4	-28.4 -28.4	-28.4	-28.4	-28.4	-28.4	-26.5	-26.4	-26.4	-26.8	*	-24.9	<del></del>	*	*	*	*	*	<u></u>
SLOW(1/4)	-28.4	-28.4	-28.4	-28.4	-28.4	-28.4	-28.4	-26.4	-26.4	-26.4	-26.8	<del></del>	-28.0	<del>^-</del>	*	*	*	*	*	*
REF.NO.			001		-20.4		20.4	20.4	20.4	20.4	20.0		003							
	<b></b>			- GA	1	2	3	1	5	6	7	8	9		I	Γ				Γ
MODE STOP	61 -30.0	62	63	4.9	12.0	14.5	12.4	0	0	0	12.4	14.5	12.0			-				
FF	-30.0	2.3	2.4	4.9	12.0	14.5	12.4	0	0	0	12.4	14.4	11.9			<del>                                     </del>	<del> </del>			
REW	-30.0	2.2	2.3	0	11.9	14.4	12.4	0	0	0	12.3	14.4	11.9		!	<del>                                     </del>	<del> </del>			
REC	-30.0	2.2	2.3	4.9	12.0	14.4	12.4	0	0	0	12.4	14.4	12.0	l	<b> </b>	<u> </u>	-			
PLAY	-29.9	2.3	<del> </del>			14.0	14.4	U .	_ ·		16.7		1 14.0		l	<del> </del>	+	<del>                                     </del>	<b></b>	
CUE	/9.9		1 77	10	12 0	1///	12 /	l n	1 0	n			· · · · · · · · · · · · · · · · · · ·			1		1		
			2.3	4.9	12.0	14.4	12.4	0	0	0	12.4	14.4	12.0							
	-30.1	2.3	2.4	4.9	12.0	14.4	12.4	0	0	0	12.4 12.4	14.4 14.4	12.0 12.0							
REV	-30.1 -30.1	2.3	2.4	4.9 4.9	12.0 12.0	14.4 14.4	12.4 12.4	0	0	0	12.4 12.4 12.4	14.4 14.4 14.4	12.0 12.0 11.9							
REV F.ADV.	-30.1 -30.1 -30.1	2.3 2.2 2.2	2.4 2.3 2.3	4.9 4.9 4.9	12.0 12.0 12.0	14.4 14.4 14.5	12.4 12.4 12.4	0 0 0	0 0 0	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4)	-30.1 -30.1 -30.1	2.3	2.4	4.9 4.9	12.0 12.0	14.4 14.4	12.4 12.4	0	0	0	12.4 12.4 12.4	14.4 14.4 14.4	12.0 12.0 11.9							
REV F.ADV. SLOW(1/4) REF.NO.	-30.1 -30.1 -30.1	2.3 2.2 2.2	2.4 2.3 2.3	4.9 4.9 4.9	12.0 12.0 12.0	14.4 14.4 14.5	12.4 12.4 12.4	0 0 0 0	0 0 0	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4) REF.NO. MODE	-30.1 -30.1 -30.1 -30.1 TP6001	2.3 2.2 2.2 2.2 2.2 TP6002	2.4 2.3 2.3 2.3 TP6003	4.9 4.9 4.9 4.9 TP2001	12.0 12.0 12.0 11.9 TP2002	14.4 14.4 14.5 14.5 TP2003	12.4 12.4 12.4 12.4 12.4 TP2004	0 0 0 0 0 TP2005	0 0 0 0 TP2007	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(½) REF.NO. MODE STOP	-30.1 -30.1 -30.1 -30.1 TP6001	2.3 2.2 2.2 2.2 2.2 TP6002	2.4 2.3 2.3 2.3 TP6003	4.9 4.9 4.9 4.9	12.0 12.0 12.0 11.9	14.4 14.4 14.5 14.5	12.4 12.4 12.4 12.4	0 0 0 0	0 0 0 0	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4) REF.NO. MODE STOP FF	-30.1 -30.1 -30.1 -30.1 TP6001 3.8 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9	2.4 2.3 2.3 2.3 TP6003 0.2 0.1	4.9 4.9 4.9 4.9 TP2001	12.0 12.0 12.0 11.9 TP2002	14.4 14.4 14.5 14.5 TP2003	12.4 12.4 12.4 12.4 12.4 TP2004	0 0 0 0 0 TP2005	0 0 0 0 TP2007	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4) REF.NO. MODE STOP FF REW	-30.1 -30.1 -30.1 -30.1 TP6001 3.8 3.7 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9 0.9	2.4 2.3 2.3 2.3 TP6003 0.2 0.1 0.1	4.9 4.9 4.9 4.9 TP2001	12.0 12.0 12.0 11.9 TP2002	14.4 14.4 14.5 14.5 TP2003	12.4 12.4 12.4 12.4 TP2004	0 0 0 0 TP2005	0 0 0 0 TP2007	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(½) REF.NO. MODE STOP FF REW REC	-30.1 -30.1 -30.1 -30.1 TP6001 3.8 3.7 3.7 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9 0.9 1.0	2.4 2.3 2.3 2.3 TP6003 0.2 0.1 0.1	4.9 4.9 4.9 4.9 TP2001	12.0 12.0 12.0 11.9 TP2002 1.9	14.4 14.4 14.5 14.5 TP2003 0	12.4 12.4 12.4 12.4 TP2004 2.5	0 0 0 0 TP2005 2.5	0 0 0 0 TP2007 1.5	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(½) REF.NO. MODE STOP FF REW REC PLAY	-30.1 -30.1 -30.1 -30.1 TP6001 3.8 3.7 3.7 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9 0.9 1.0	2.4 2.3 2.3 2.3 TP6003 0.2 0.1 0.1 0.1	4.9 4.9 4.9 4.9 TP2001 0	12.0 12.0 12.0 11.9 TP2002 1.9	14.4 14.5 14.5 14.5 TP2003 0	12.4 12.4 12.4 12.4 12.4 TP2004 2.5	0 0 0 0 TP2005 2.5	0 0 0 0 TP2007 1.5	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4) REF.NO. MODE STOP FF REW REC PLAY	-30.1 -30.1 -30.1 -30.1 TP6001 3.8 3.7 3.7 3.7 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9 0.9 1.0 1.0 0.8	2.4 2.3 2.3 2.3 TP6003 0.2 0.1 0.1 0.1	4.9 4.9 4.9 4.9 TP2001 0 0	12.0 12.0 12.0 11.9 TP2002 1.9 2.4 1.9	14.4 14.4 14.5 14.5 TP2003 0 2.5 2.5 2.5	12.4 12.4 12.4 12.4 12.4 TP2004 2.5 2.6 2.6 2.6	0 0 0 0 TP2005 2.5	0 0 0 0 TP2007 1.5	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4) REF.NO. MODE STOP FF REW REC PLAY CUE REV	-30.1 -30.1 -30.1 TP6001 3.8 3.7 3.7 3.7 3.7 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9 0.9 1.0 1.0 0.8	2.4 2.3 2.3 2.3 TP6003 0.2 0.1 0.1 0.1 0.1	4.9 4.9 4.9 4.9 TP2001 0 0 0	12.0 12.0 12.0 11.9 11.9 1.9 2.4 1.9 1.9	14.4 14.5 14.5 14.5 TP2003 0 2.5 2.5 2.5 2.5	12.4 12.4 12.4 12.4 TP2004 2.5 2.6 2.6 2.5	0 0 0 0 TP2005 2.5	0 0 0 0 TP2007 1.5	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							
REV F.ADV. SLOW(1/4) REF.NO. MODE STOP FF REW REC PLAY	-30.1 -30.1 -30.1 -30.1 TP6001 3.8 3.7 3.7 3.7 3.7	2.3 2.2 2.2 2.2 TP6002 1.0 0.9 0.9 1.0 1.0 0.8	2.4 2.3 2.3 2.3 TP6003 0.2 0.1 0.1 0.1	4.9 4.9 4.9 4.9 TP2001 0 0	12.0 12.0 12.0 11.9 TP2002 1.9 2.4 1.9	14.4 14.4 14.5 14.5 TP2003 0 2.5 2.5 2.5	12.4 12.4 12.4 12.4 12.4 TP2004 2.5 2.6 2.6 2.6	0 0 0 0 TP2005 2.5	0 0 0 0 TP2007 1.5	0 0 0	12.4 12.4 12.4 12.4	14.4 14.4 14.4 14.5	12.0 12.0 11.9 11.9							

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE.
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.

★: UNMEASURABLE OR UNNECESSARY TO MEASURE.



$\neg$									
┙	12	13	14	15	16	17	18	19	20
J	4.9	4.9	4.7	0	4.9	0	0.6	2.5	1.9
I	4.9	4.9	0	0	4.8	0	0.5	2.5	1.8
$\Box$	4.9	4.7	0	4.9	4.8	0	0.5	2.4	1.8
I	4.9	0	0	0	4.8	0	0.6	2.4	1.9
floor	4.9	4.9	0	0	0	0	0.6	2.4	1.9
I	4.9	4.9	0	0	0	4.9	0.6	2.4	1.8
	4.9	4.9	0	4.9	0	4.9	0.6	2.4	1.8
1	4.9	4.9	0	0	0	4.9	0.6	2.4	1.8
floor	4.9	4.9	0	0	0	4.9	0.6	2.4	1.9
_									
	32	33	34	35	36	37	38	39	40
$\perp$	0.1	0.2	4.7	0	11.9	-28.3	-28.3	-28.3	-28.
	2.0	0.2	4.7	0	11.8	-28.3	-28.3	-28.3	-28.
	2.0	0	4.8	0	10.3	-28.3	-28.3	-28.3	<b>-</b> 28.
	*	0.2	4.7	0	0.3	-28.2	0	-28.2	-28.
$\rfloor$	*	0.1	0.3	0.2	*	*	*	.*	-28.
1	*	0.2	0.3	3.9	11.9	-28.4	-28.4	-28.4	-28.
I	*	0.2	0.3	0.2	11.9	-28.5	-28.4	-28.4	-28.
	0.1	0.2	0.3	3.9	11.9	-28.4	-28.4	-28.4	-28.
$\rfloor$	4.2	0.2	0.3	3.9	11.9	-28.4	-28.4	-28.4	-28.
I	52	53	54	55	56	57	58	59	60
$\int$	*	-28.0	*	*	*	*	*	*	*
I	*	-28.0	*	*	*	*	*	*	*
I	*	-24.9	*	*	*	*	*	*	*
$\int$	*	-24.6	*	*	*	*	*	*	*
I	*	-28.4	*	*	*	*	*	*	*
Т						. –			
_	*	-24.8	*	*	*	*	*	*	*
1	*	-24.9	*	*	*	*	*	*_	*
1									
#	*	-24.9	*	*	*	*	*	*	*
	* * *	-24.9 -24.9	*	*	*	*	*	*	* *
	* * *	-24.9 -24.9 -28.0	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0 003 9	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0 003 9 12.0	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0 003 9 12.0 11.9	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0 003 9 12.0 11.9	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0 003 9 12.0 11.9 11.9 12.0	*	*	*	*	*	*	* *
	* IC66 8 14.5 14.4 14.4 14.3 14.4	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0	*	*	*	*	*	*	* *
	*	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0	*	*	*	*	*	*	* *
	*  *  *  *  *  *  *  *  *  *  *  *  *	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *
	* IC66  8  14.5  14.4  14.4  14.3  14.4  14.4  14.4  14.5	-24.9 -24.9 -28.0 003 9 12.0 11.9 12.0 12.0 12.0 11.9 11.9	*	*	*	*	*	*	* *

ARY TO MEASURE.

REF.NO.		Q6001			Q6002	_		Q6003			Q6004			Q6005			Q6009	
MODE	E	В	С	E	В	C	E	В	С	E	B.	С	E	В	С	E	В	С
STOP	-26.9	-26.3	4.9	-26.9	-26.3	4.9	-26.9	-26.3	4.9	Ò	0	4.9	0	0.5	3.2	0	0.1	10.2
FF	-26.9	-26.3	4.9	-26.9	-26.3	4.9	-26.9	-26.3	4.9	0	0	4.9	0 .	0.4	3.2	0	0.1	10.2
REW	-26.9	-26.3	4.9	-26.9	-26.3	4.9	-26.9	-26.3	4.9	0	0	4.9	0	0.5	3.0	0	0.1	10.2
REC	-26.9	-26.2	4.9	-26.9	-26.3	4.9	-26.9	-26.3	4.9	0	0	4.9	0	0.5	3.0	0	0.1	10.2
PLAY	-27.0	-26.3	4.9	-27.0	-26.4	4.9	-27.0	-26.4	4.9	0	0	4.9	0	0.5	3.0	0	0.1	10.2
CUE	-27.0	-26.4	4.9	-27.0	-26.4	4.9	-27.0	-26.4	4.9	0	0	4.9	0	0.5	3.0	0	0.1	10.2
REV	-27.0	-26.4	4.9	-27.1	-26.5	4.9	-27.0	-26.4	4.9	0	0	4.9	0	0.4	3.0	0	0.1	10.1
F.ADV.	-27.1	-26.4	4.9	-27.1	-26.4	4.9	-27.0	-26.4	4.9	0	0	4.9	0	0	3.0	0	0.1	10.1
SL0W(1/4)	-27.0	-26.4	4.9	-27.1	-26.4	4.9	-27.0	-26.4	4.9	0	0	4.9	0	0	3.0	0	0.1	10.1
REF.NO.		Q6010			Q6011			Q6012			Q6013			Q6016			Q6017	
MODE	E	В	С	E	В	С	E	В	С	E	В	C	E	В	С	E	В	C
STOP	0	0.2	4.5	0.8	0.5	1.5	0.8	1.5	0.8	12.0	12.4	0	5.0	4.9	0.1	0	0	5.0
FF	0.1	0.1	4.4	0.7	0.5	1.5	0.8	1.5	0.8	12.0	12.4	12.4	5.0	4.8	0	0	0	5.0
REW	0.1	0.2	4.5	0.8	0.5	1.5	0.8	1.5	8.0	12.0	12.4	12.4	5.0	4.9	0	0.	0	5.0
REC	0,1	0.2	4.5	0.8	0.5	1.5	0.8	1.5	8.0	12.0	12.4	12.4	5.0	4.8	0	0	0	5.0
PLAY	0.1	0.2	4.5	0.8	0.5	1.5	0.8	1.5	8.0	12.0	12.4	12.4	5.0	4.2	4.7	0	0	5.0
CUE	0.1	0.2	4.5	0.8	0.5	1.5	0.8	1.5	0.8	12.0	12.4	12.4	5.0	4.2	4.7	0	0	5.0
REV	0.1	0.2	4.4	0.8	0.5	1.5	0.8	1.5	0.8	11.9	12.4	12.4	4.9	4.1	4.7	0	0	4.9
F.ADV.	0.1	0.2	4.4	0.8	0.5	1.5	0.8	1.5	0.8	11.9	12.4	12.4	5.0	4.1	4.7	0	0	4.9
SL0W(1/4)	0.1	0.2	4.4	0.8	0.5	1.5	0.8	1.5	0.8	11.9	12.4	12.4	5.0	4.1	4.7	0	0	5.0
REF.NO.		Q6018			Q6019			,						,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1	
MODE	E	В	С	E	В	С												-
STOP	3.9	0.2	0.4	1.7	2.1	3.7									· ·			
FF	3.9	0.1	4.6	1.7	2.1	3.7												
REW	3.8	0.2	4.6	1.7	2.1	3.7												ļ
REC	0	0.2	4.7	1.7	2.1	3.7											ļ	-
PLAY	0	0.2	4.7	1.7	2.1	3.7												-
CUE	0	0.2	4.7	1.7	2.1	3.7												
REV	0	0.2	4.7	1.7	2.1	3.7											ļ	<u> </u>
F.ADV.	0	0.2	0.5	1.7	2.1	3.7											ļ	
SL0W(1/4)	0	0.2	0.7	1.7	2.1	3.7					L							
REF.NO.		Q2001			Q2002			Q2003			Q2004			Q2005				
MODE	E	В	С	E	В	С	E	В	С	E	В	С	Е	В	С			-
STOP	1.7	1.1	1.7	0	-0.3	4.8	1.8	2.4	5.0	2.1	1.4	2.1	11.9	12.4	*			
REC	2.6	4.9	2.5	0	-0.3	4.8	1.8	2.4	4.9	0	4.9	2.5	11.7	12.4	14.2		-	-
PLAY	2.7	4.9	2.5	0	-0.3	4.8	1.8	2.4	4.9	2.8	4.9	2.4	11.8	12.4	14.4			-
CUE	2.6	4.9	2.4	0	-0.3	4.8	1.8	2.4	5.0	2.6	4.9	2.4	11.8	12.4	14.3			
REV	2.6	4.9	2.5	0	-0.3	4.8	0	2.4	4.9	0	4.9	2.4	11.7	12.4	14.4		1	
F.ADV.	2.2	1.5	2.2	0	-0.3	4.8	1.8	2.4	4.9	2.6	2.6	2.6	0	0	14.4			
SL0W(1/4)	2.1	1.5	2.2	0	-0.3	4.8	1.7	2.3	4.9	2.6	2.6	2.6	11.8	12.4	14.4			

#### IC6001 KEY MATRIX

DATA IN		SCAN	OUT	
PIN NO.	48(SCAN 1)	49(SCAN 2)	50(SCAN 3)	51(SCAN 4)
31(DATA IN 1)	-	PAUSE		POSITION 3★
30(DATA IN 2)		REC	F.ADV /SLOW	POSITION 2★
29(DATA IN 3)		PLAY	OTR	POSITION 1★
28(DATA IN 4)	POWER	ST0P	TIMER	LP/SLP 🕀
27(DATA IN 5)	·	EJECT	MODE	SLP (f)
26(DATA IN 6)	COUNTER RESET	REW/REVIEW	SELECT	CASSETTE DOWN
25(DATA IN 7)	TV/VCR	FF/CUE	TIME SET	SAFETY TAB

<sup>★</sup>SEE MODE SWITCH POSITION CODE CHART.

SERVO S	SECTION
Q2001	11-C
Q2002	9-C
Q2003	16-B
Q2004	11-A
Q2005	16-A

	CONTROL TION
Q6001	6-E
Q6002	6-E
Q6003	6-D
Q6004	3-B
Q6005	8-B
Q6009	5-A
Q6010	5-B
Q6011	5-A
Q6012	6-B
Q6013	2-D
Q6016	3-B
Q6017	2-C
Q6018	7-A
Q6019	4-B

## **IC6001 MATRIX CHART**

#### IC6001 SAFETY DEVICE

SENSOR LED PULSE	DATA IN		
PIN NO.	20(DATA IN10)	21(DATA IN 9)	22(DATA IN 8)
18(H) LEVEL)	TAKEUP PHOTO TR©	SUPPLY PHOTO TR ①	AUTO STOP⊕
18(① LEVEL)	DEW SENSOR (H)	REMOTE PAUSE ①	CYLINDER LOCK ①

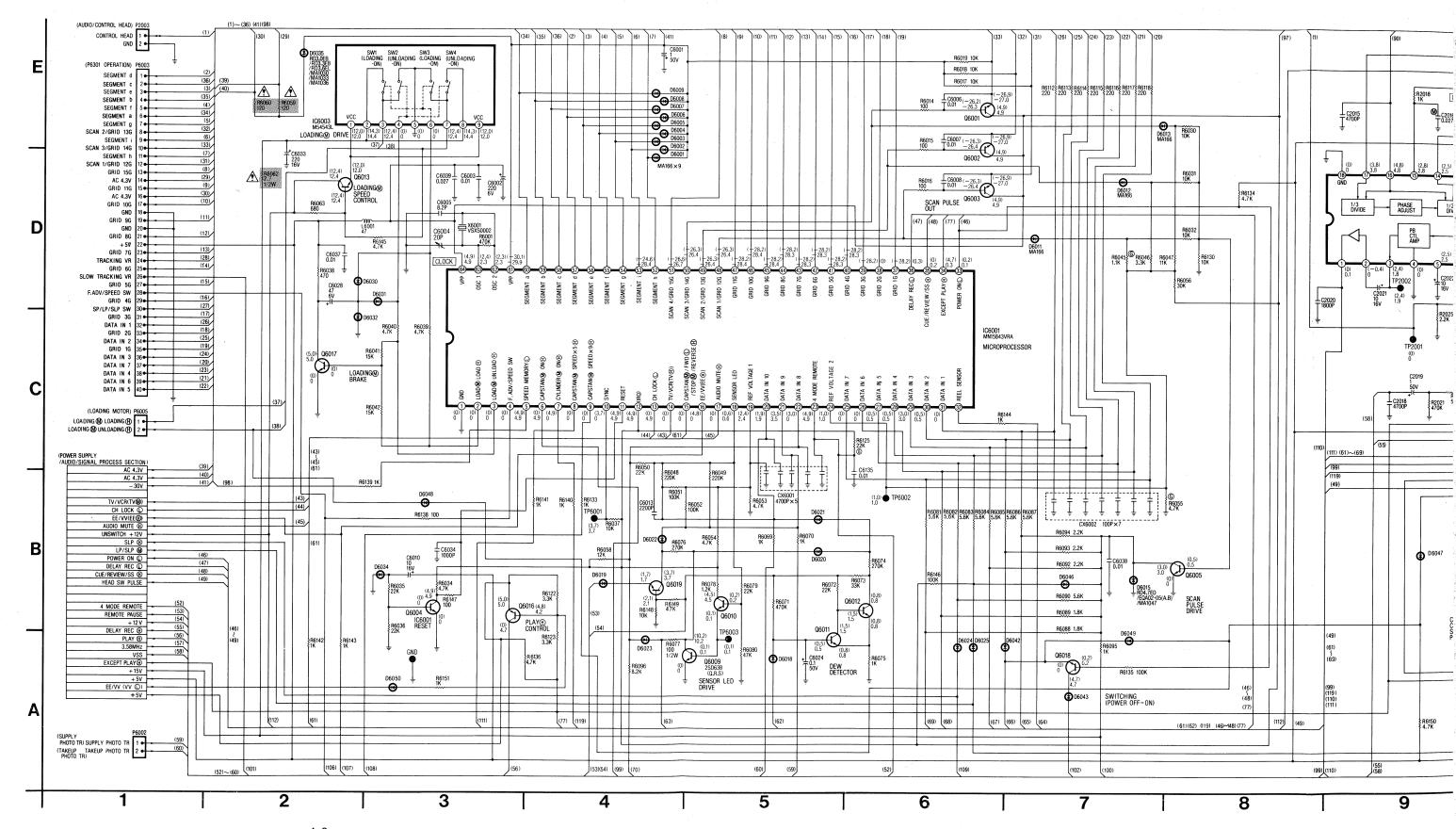
#### IC6001 MODE SWITCH POSITION CODE

DATA IN	POSITION 1★	POSITION 2★	POSITION 3★
SWITCH POSITION	29(DATA IN 3)	30(DATA IN 2)	31(DATA IN 1)
EJECT	L	Н	Н
STOP	Ι	L	Н
FF/REW	Н	L	Н
REC/ PAUSE	Н	L	L
REVIEW	Н	L	L
PLAY	L	Н	L

## MAIN SCHEMATIC DIAGRAM (SERVO/SYSTEM CONTROL SECTION)

IMPORTANT SEFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN AND HAVE SPECIAL
CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE
SPECIFIED PARTS.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACK COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BE



SERVO SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.

EXAMPLE: C.B.A...R2, REF. NO. 2000 SERIES

SCHEMATIC DIAGRAM...R2002

(R2002 IS ABBREVIATED TO R2)

SYSTEM CONTROL SECTION

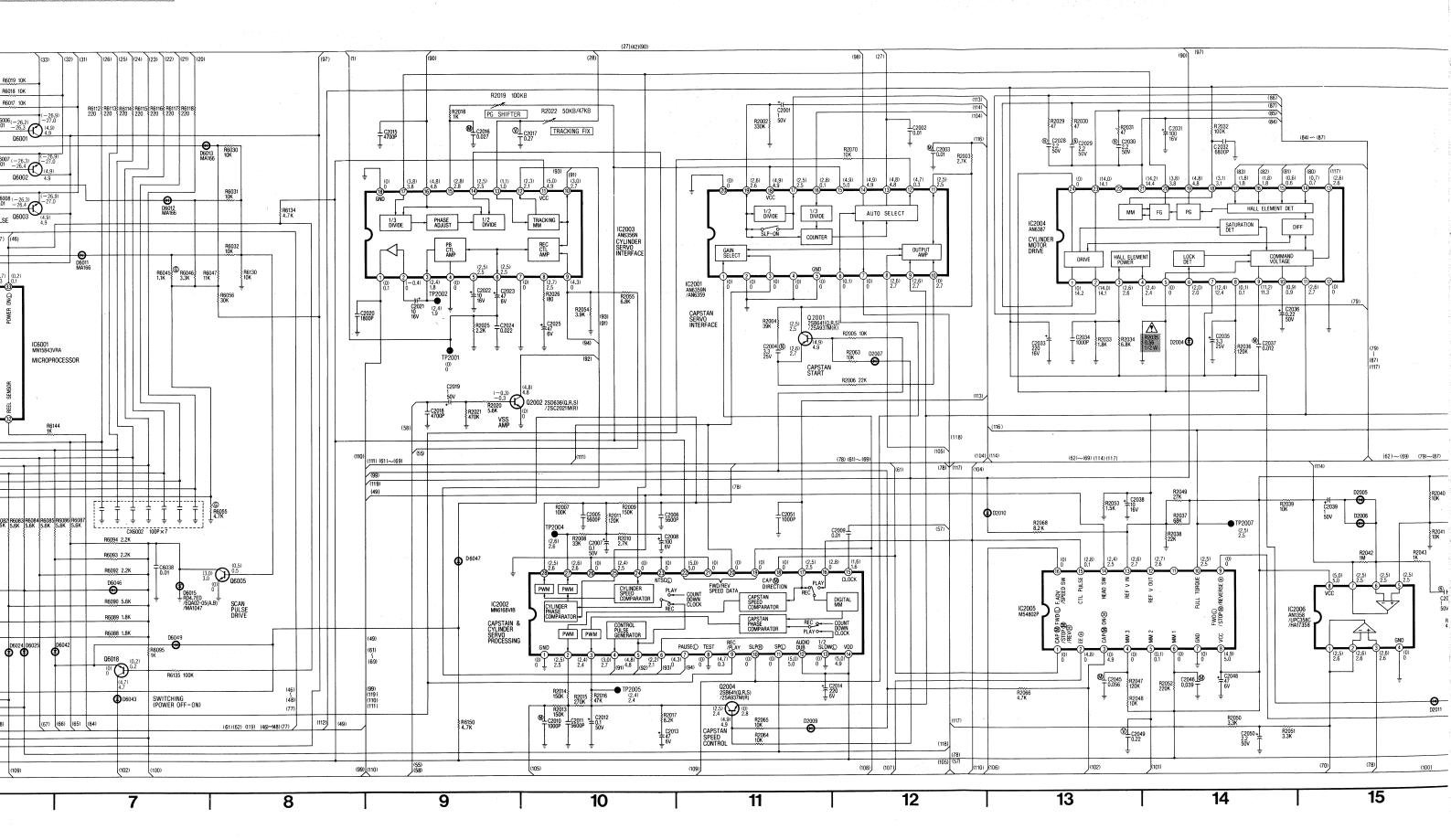
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.

EXAMPLE: C.B.A....R2, REF. NO. 6000 SERIES

SCHEMATIC DIAGRAM...R6002

(R6002 IS ABBREVIATED TO R2)

SPECIAL N ALL INTEG ELECTROS HANDLING (ES) DEVIC



SERVO SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.

EXAMPLE: C.B.A....R2, REF. NO. 2000 SERIES

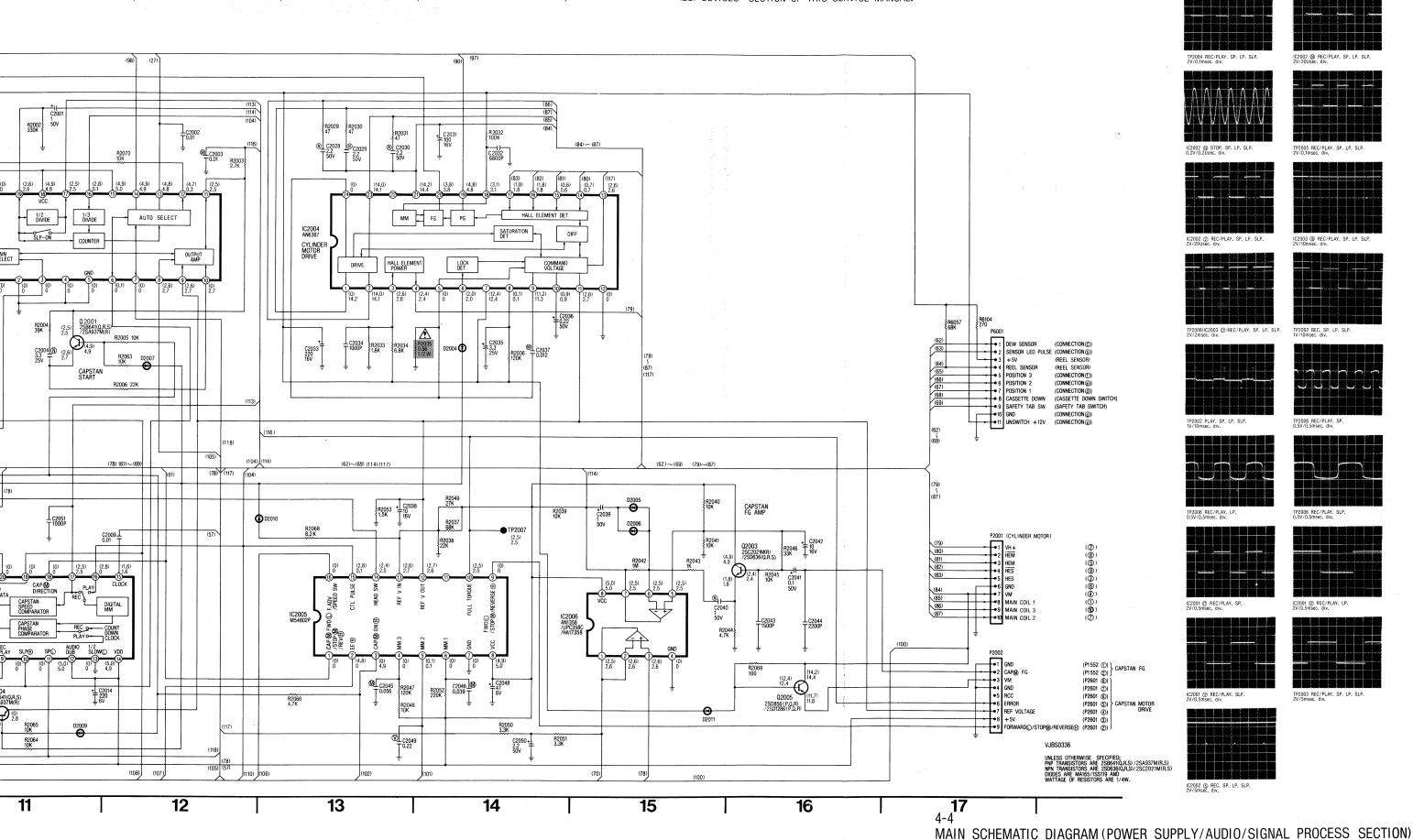
SCHEMATIC DIAGRAM...R2002

(R2002 IS ABBREVIATED TO R2)

SYSTEM CONTROL SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A....R2, REF. NO. 6000 SERIES SCHEMATIC DIAGRAM...R6002 (R6002 IS ABBREVIATED TO R2) SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.





AUDIO SECTI VOLTAGE ME, MONO S MONO S

IS A HOT CIRCUIT.
BE CAREFUL WHEN SERVICING.

POWER SUPPLY/DEMODULATOR SIGNAL PROCESS SECTION VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN STOP MODE.

LUMINANCE SIGNAL PROCESS SECTION
VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

REC VIDEO R3001 LEVEL R3001 + 30V REGULATOR 32.1 01011 2SB642 +12V REGULATOR  $\triangle$ R1026 14.2 нот VIDEO HEÁD(F 01006 C3002 220P (P7301 CHANNEL SELECT) SWITCHING REGULATOR DRIVE DEFEAT D #1006 **1** D1005 CH LOCK® L1007 4.7 ⊥ C1026 ⊤ 0.01 REC CHROMA LEVEL C1019 T 0.01 C1020 T 0.01 (JUMPER TV DEMODULATOR) JUMPER UHF / VHF AGC 1 C1024 1008 22 IC 7001 AN5070 U/V TUNER CONTROL R7030 12K RF AGC B DISCRIMI — NATION 31.7V VOLTAGE SET SWITCHING (TV - ON) 07007 2SD637 (Q.R.S.) 功₀ R7034 8.2K 0.7 07005 07004 02SD637(Q.F 0 07004 2SD637(Q.R.S) AUDIO O-RF CH INVERTER 0 Q7010 2SD637(Q.R.S) SW7001 AFT DEFEAT + 5V O-Q7002 2SD637(Q.R.S) (ANTENNA TERMINAL UNIT) INVERTER R7041 220 1/2W TV/VCR O-+ 5V 😽 9 8 3 6 4 5

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN A HAVE SPECIAL

CHARACTERISTICS IMPORTANT FOR SAFETY.

WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE

SPECIFIED PARTS.

AUDIO SECTION
VOLTAGE MEASUREMENT:
MONO SCOPE SIGNAL IN SP REC MODE WITH BRACKET.
MONO SCOPE SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

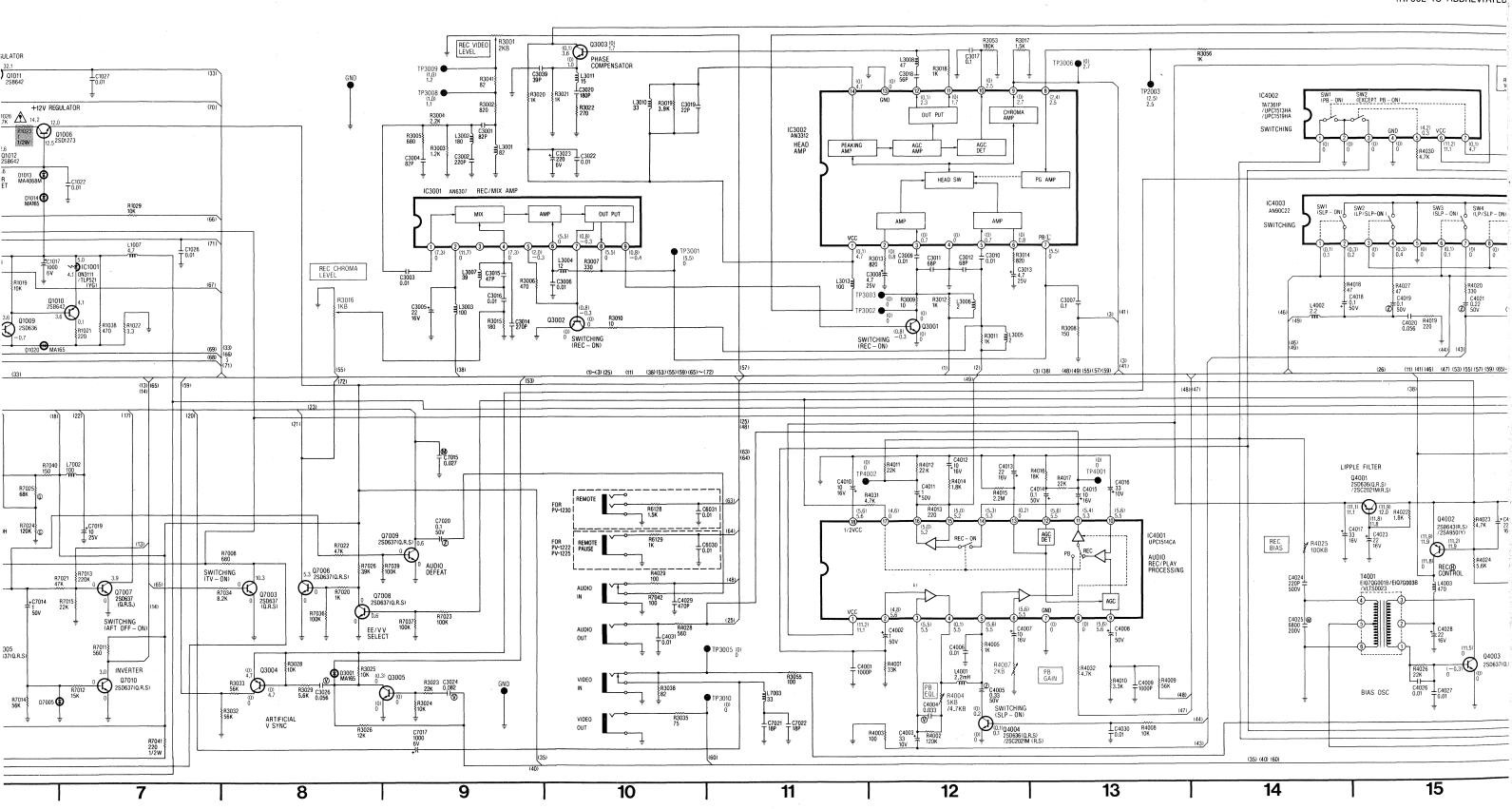
SPECIAL NOTE:
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HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

POWER SUPPLY SECTION NOTE: REF. NO. ON C.B.A. IS I EXAMPLE: C.B.A.···R2, R SCHEMATIC DIAGRA (R1002 IS ABBREVIATED

DEMODULATOR SIGNAL PROCES

NOTE: REF. NO. ON C.B.A. IS F
EXAMPLE: C.B.A....R2, R
SCHEMATIC DIAGRAM
(R7002 IS ABBREVIATED



RACKET.

IC3002 AN3312

HEAD AMP

SPECIAL NOTE: ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

TP3006 (0)

TP4001 | C4015 | T0 16V

± C4016 1 33 1 10∨

LC4009 R4009

R4017 22K

PB GAIN

TP2003 (2.5) 2.5

(48)(47)

IC4002 TA7361P /UPC1513HA /UPC1519HA

IC4003 AN90C22

SWITCHING

REC BIAS

C4024 220P 500V

SW1 (SLP - ON)

LIPPLE FILTER

Q4001 2SD636(Q.R.S) /2SC2021M(R.S)

1) (11.9) 12.0 (11.8) 11.8

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

CHROMA AMP

PG AMP

AGC DET

AMP

C3010

R4015 2.2M

C3012 68P

C3018 T

OUT PUT

C3011 68P

R4013 220

HEAD SW

AGC AMP

0.8 C3009 0.01

R3009

L3013

1/2VCC

L C4001 T 1000P

C4002

POWER SUPPLY SECTION NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A...R2, REF. NO. 1000 SERIES SCHEMATIC DIAGRAM···R1002 (R1002 IS ABBREVIATED TO R2)

DEMODULATOR SIGNAL PROCESS SECTION NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A....R2, REF. NO. 7000 SERIES SCHEMATIC DIAGRAM···R7002 (R7002 IS ABBREVIATED TO R2)

SW3 (SLP - ON)

(11) (41) (46) (47) (53) (55) (57) (59) (65)~(

2SB643(R.S) /2SA950(Y)

1.9 (11.2)

₹ L4003

+C4032

2SD637(Q.R.S)

Ф D3004 MA165

R3031 10K

R3052

03007 2SC1684 (Q.R.S) (0) (0)

INVERTER

R3039 8.2K

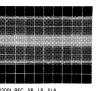
R8001 6.8K

03006

AUDIO SECTION NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A.···R2, REF. NO. 4000 SERIES SCHEMATIC DIAGRAM···R4002 (R4002 IS ABBREVIATED TO R2)

LUMINANCE SIGNAL PROCESS SECTION NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A.···R2, REF. NO. 3000 SERIES SCHEMATIC DIAGRAM···R3002 (R3002 IS ABBREVIATED TO R2)







REC LUMINANCE
HSS
HEAD SW PULSE

VIDEO GND VIDEO 6 VIDEO
7 GND
8 VIDEO
9 ARTIFICIAL V SYNC
10 PB CHROMA
11 EE/VV (EE@)

2 LP/SLP®

EE/VV(EE®)

AUDIO MUTE ®

UNSWITCH +12V

SLP (B)
LP/SLP (B)
POWER ON (D)
DELAY REC (D)

REMOTE PAUSE

DELAY REC (H) PLAY ⊕ 3.58MHz

XCEPT PLAY (1)

JUMPER(JUMPER CHROMINANCE) PLAY (B)

> HSS PULSE VIDEO HEAD SW PULSE

PB CHROMA REC CHROMA

3.58MHz DELAY REC +12V SLP® .P/SLP®

PB CHROMA (629KHz

EE/VV (VV ())

SERVO/SYSTEM CONTROL SECTION

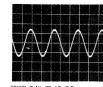
11 EE/VV (E:
12 LP/SLP®
13 PB VIDEO
14 DOC DET
15 PICTURE
16 PLAY ®
17 GND







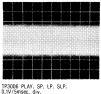
IC3002 ® PLAY, SP. LP. SLP. 2V/10msec, div.





IC4001 @ STOP. 0.5V/1msec, div.







TP3010 PLAY, SP. LP. SLP. 0.5V/20Usec, div.



TP4001 REC. SP. LP. SLP. 0.5V/1msec. div.



TP4002 REC. SP. LP. SLP. 0.5V/1msec. div.

POWER SEC	
Q1001	3-D
Q1002	3-D
Q1003	3-D
Q1004	5-D
Q1006	6-E
Q1007	6-D
Q1009	6-C
Q1010	7-C
Q1011	6-E
Q1012	6-D
Q1013	6-D

4.0.0		ſ
AUDIO S	SECTION	
Q4001	15-B	
Q4002	15-B	
Q4003	15-A	
Q4004	12-A	

RANSISTORS ARE 2SB641(Q.R.S) RANSISTORS ARE 2SD636(Q.R.S ARE MA165/1SS119 AND GE OF RESISTORS ARE 1/4W.

LUMINANO PROCESS	
Q3001	12-C
Q3002	10-C
Q3003	10-E
Q3004	8-A
Q3005	9-A
Q3006	16-A
Q3007	16-A
DEMOD	ULATOR

	PROCESS TION
Q7002	4-A
Q7003	8-B
Q7004	5-A
Q7005	6-A
Q7006	8-B
Q7007	7-B
Q7008	8-B
Q7009	9-B
Q7010	7-A

7021 C7022 18P	R4003 C4003 R4002 (0) 0.1 250636 (0.R.S) 10V 120K 0 = /2SC2021M (R	LC4030 R4008 T0.01 10K	(44)		(60)	(35) (40)		
11	12	13	14	15	16	17	4-4	

BIAS OSC

IS A HOT CIRCUIT. BE CAREFUL WHEN SERVICING.

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SERVO/SYSTEM CONTROL/LUMINANCE SIGNAL PROCESS SECTION VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

AUDIO SECTION VOLTAGE MEASUREN

DEMODULATOR SIGNAL PROCESS SECTION

2-C

2-A

2-B

2-B

2-A

2-B

1-B

2-A

Q2 Q3

Q4

Q5

Q6

Q7

Q8

Q9

Q10

POWER SUPPLY/DEMODULATOR SIGNAL PROCESS SECTION VOLTAGE MEASUREMENT: COLOR BAR SIGNAL

IN STOP MODE.

P60	101
1	DEW SENSOR
2	SENSOR LED PULSE
3	+5V
4	REEL SENSOR
5	POSITION 3
6	POSITION 2
7	POSITION 1
8	CASSETTE DOWN
9	SAFETY TAB SW
10	GND
11	UNSWITCH +12V
P60	02

1 SUPPLY PHOTO TR

2	TAKEUP	PHC	/TO	TF
P60	03			
1	SEGMEN	Τd		
2	SEGMEN	Тс		
3	SEGMEN	Те		
4	SEGMEN	Τb		
·				-

II	_	OEGITIE!!!
_	6	SEGMENT a
	7	SEGMENT g
	8	SCAN 2/GRID 13G
	9	SEGMENT i
]	10	SCAN 3/GRID 14G
	11	SEGMENT h
1	12	SCAN 1/GRID 12G
4	13	GRID 15G
	14	AC 4.3V
<u> </u>	15	GRID 11G
	16	AC 4.3V
1	17	GRID 10G
1	18	GND
1	19	GRID 9G
J	20	GND
	21	GRID 8G

14	AC 4.3V
15	GRID 11G
16	AC 4.3V
17	GRID 10G
18	GND
19	GRID 9G
20	GND
21	GRID 8G
22	+5V
23	GRID 7G
24	TRACKING VR
25	GRID 6G
26	SLOW TRACKING VR
27	GRID 5G
28	F.ADV/SPEED SW
29	GRID 4G
30	SP/LP/SLP SW
31	GRID 3G
32	DATA IN 1
33	GRID 2G
34	DATA IN 2
35	GRID 1G
36	DATA IN 3
37	DATA IN 7
38	DATA IN 4
39	DATA IN 6
40	DATA IN 5

P2001

1 VH
2 HEM
3 HEM
4 HES
5 HES
6 GNI
7 VM
8 MA
9 MA
10 MA

		STOP MODE.
F	NATION  REMOTE PAUSE  REMOTE P	SERVO SECTION
	POWER SUPPLY SECTION PROPER SUPPLY SECTION P	Q5 7-F  SYSTEM CONTROL
E	HOT	SECTION           Q1         4-A           Q2         5-A           Q3         4-A           Q4         5-B
	G	05 6-A 09 6-B 010 5-B 011 5-C 012 5-C 013 4-C
<b>)</b>	COD 15 10 10 10 10 10 10 10 10 10 10 10 10 10	016 3-A 017 5-C 018 7-B 019 5-E
_	10	AUDIO SECTION    Q1   5-E     Q2   5-E
	100	03 4-E 04 4-E
	CHEDWINAVCE  WEST OFFI TO SERVICE  WEST OFFI	LUMINANCE SIGNAL   PROCESS SECTION
3	100	Q4 3-B Q5 3-B Q6 3-B Q8001 4-A
	## 1	POWER SUPPLY SECTION  Q1 1-D
<b>1</b>	We will be seen as the seed of	02 1-D 03 2-D 04 1-E 06 3-D 07 3-E
	Semboul at the signal was processed by the signal was proc	09 2-D 010 2-D 011 3-E 012 3-D 013 2-C

ICE SIGNAL PROCESS SECTION R SIGNAL MODE.

AUDIO SECTION VOLTAGE MEASUREMENT: MONO SCOPE SIGNAL IN SP REC MODE.

SPECIAL NOTE: ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

PROCESS SECTION GNAL				
SERVO SECTION				
Q1	7-C			
Q2	6-D			
Q3 8-F				
Q4 6-C				
05	7-F			

ERVO	SECTION		DEMODULAT SIGNAL PROC SECTION		
Q1	7-C		SEC	TION	
Q2	6-D		Q2	2	
Q3	8-F	1	Q3	2	
Q4	6-C	1	Q4	2	
Q5	7-F	1	Q5	2	
		_	Q6	2	
			Q7	2	
			Q8	2	
		1	Q9	- 1	

SYSTEM CONTROL SECTION			
Q1	4-A		
Q2	5-A		
Q3	4-A		
Q4	5-B		
Q5	6-A		
Q9	6-B		
Q10	5-B		
Q11	5-C		
Q12	5-C		
Q13	4-C		
Q16	3-A		
Q17	5-C		
Q18	7-B		
Q19	5-E		

AUDIO SECTION					
Q1	5-E				
Q2	5-E				
Q3	4-E				
Q4	4-E				

E SIGNAL SECTION
6-F
6-E
5-F
3-B
3-B
3-B
4-A
4-A

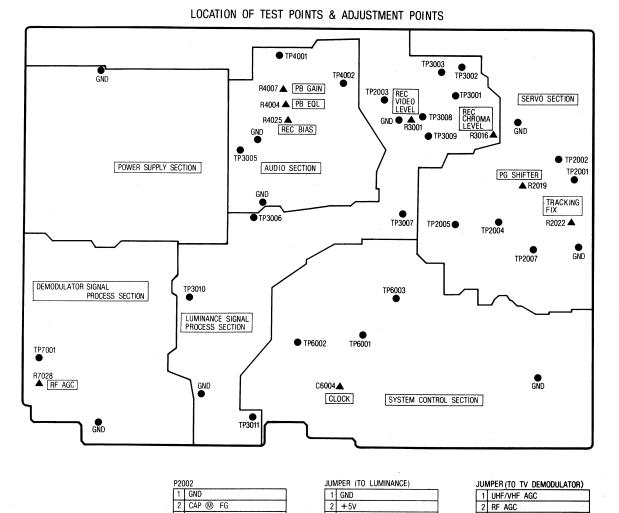
POWER SUPPLY SECTION				
Q1	1-D			
Q2	1-D			
Q3	2-D			
Q4	1-E			
Q6	3-D			
Q7	3-E			
Q9	2-D			
Q10	2-D			
Q11	3-E			
Q12	3-D			
Q13	2-C			

DEMODULATOR SIGNAL PROCESS SECTION			
Q2	2-C		
Q3	2-C		
Q4	2-A		
Q5	2-B		
Q6	2-B		
Q7	2-A		
Q8	2-B		
Q9	1-B		
Q10	2-A		

P60	01
1	DEW SENSOR
2	SENSOR LED PULSE
3	+5V
4	REEL SENSOR
5	POSITION 3
6	POSITION 2
7	POSITION 1
8	CASSETTE DOWN
9	SAFETY TAB SW
10	GND
11	UNSWITCH +12V

P60	002	
1	SUPPLY PHOTO TR	
2	TAKEUP PHOTO TR	

POL	103
1	SEGMENT d
2	SEGMENT c
3	SEGMENT e
4	SEGMENT b
5	SEGMENT f
6	SEGMENT a
7	SEGMENT g
8	SCAN 2/GRID 13G
9	SEGMENT i
10	SCAN 3/GRID 14G
11	SEGMENT h
12	SCAN 1/GRID 12G
13	GRID 15G
14	AC 4.3V
15	GRID 11G
16	AC 4.3V
17	GRID 10G
18	GND
19	GRID 9G
20	GND
21	GRID 8G
22	+5V
23	GRID 7G
24	TRACKING VR
25	GRID 6G
26	SLOW TRACKING VR
27	GRID 5G
28	F.ADV/SPEED SW
29	GRID 4G
30	SP/LP/SLP SW
31	GRID 3G
32	DATA IN 1
33	GRID 2G
34	DATA IN 2
35	GRID 1G
36	DATA IN 3
37	DATA IN 7
38	DATA IN 4
39	DATA IN 6
	DATA IN 5



3 REC LUMINANCE 5 HEAD SW PULSE

			6	ERROR
P60	2005	7	REF VOLTAGE	
100		1		
1	LOADING LOADING		8	+5V
2	LOADINGM UNLOADINGH	J	9	FORWARD()/STOP(M/REVERSE(H)
200	204			
P20		4	JUN	MPER (TO CHROMINANCE)
1	VH+		1	PLAY( <del>I</del> )
2	HEM		2	DOC
3	HEM		3	+5V
4	HES		4	CUE/REVIEW/SS®
5	HES		5	HSS PULSE
6	GND		6	HSS
7	VM		7	VIDEO
8	MAIN COIL 1		8	HEAD SW PULSE
9	MAIN COIL 3		9	PB CHROMA
10	MAIN COIL 2		10	REC CHROMA
			11	3.58MHz
			12	DELAY REC +12V
			13	SLP®
			14	LP/SLP®
P20	P2003			GND
1	CONTROL HEAD		15 16	PB CHROMA (629KHz)
2	GND	1	17	GND
نب		ı	٠., ١	<u> </u>

6	VIDEO -	6	AFT SW
7	GND	7	GND
8	VIDEO	8	+12V
9	ARTIFICIAL V SYNC	9	AFT
10	PB CHROMA	10	VIDEO
11	EE/VV (EE®)	11	EE/VV (VV©)
12	LP/SLP®	12	+12V
13	PB VIDEO	13	
14	DOC DET	14	GND
15	PICTURE	15	AUDIO
16	PLAY®		
	GND		
17	UND		
17	UND		
		P70	01
17 P30		P70	01
		1 2	101
P30	001	1	01 VH
P30	001 VIDEO HEAD (L)	1 2	VH U
P30	VIDEO HEAD (L)	1 2 3	VH
P30	VIDEO HEAD (L) GND VIDEO HEAD (R)	1 2 3 4	VH U
P30 1 2 3 4	VIDEO HEAD (L) GND VIDEO HEAD (R) VIDEO HEAD (R) (L)	1 2 3 4 5	VH U DEFEAT
P30	VIDEO HEAD (L) GND VIDEO HEAD (R) VIDEO HEAD (R) (L)	1 2 3 4 5 6	VH U DEFEAT GND
P30 1 2 3 4	VIDEO HEAD (L)  GND  VIDEO HEAD (R)  VIDEO HEAD (R) (L)  01  GND	1 2 3 4 5 6 7	VH U DEFEAT GND UNSWITCH +12V
P30 1 2 3 4	VIDEO HEAD (L) GND VIDEO HEAD (R) VIDEO HEAD (R) VIDEO HEAD (R) (L)	1 2 3 4 5 6 7 8	VH U DEFEAT GND UNSWITCH +12V +30V
P30 1 2 3 4	VIDEO HEAD (L)  GND  VIDEO HEAD (R)  VIDEO HEAD (R) (L)  01  GND	1 2 3 4 5 6 7 8 9	VH U DEFEAT GND UNSWITCH +12V +30V CH LOCK ©

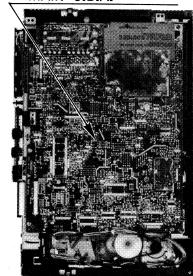
2 RF AGC 3 GND 4 IF

5 GND 6 AFT SW

REF.NO.		Q3001			Q3002	1		Q3003			Q3004			Q3005			Q3006	
MODE	E	В	С	E	В	С	E	В	С	E	В	С	E	В	С	E	В	С
STOP	0	0.5	0	0	0.4	0	0	0	0.1	0.1	0.1	0	0	0	0.6	2.7	2.0	0
REC	0	0.8	0	0	0.8	0	0	0	0.1	0	0	0	0	0	0.3	2.7	2.0	0
PLAY	0	-0.3	0	0	-0.3	0	1.0	1.7	3.6	4.7	4.7	0	0	0	0.0	2.8	2.1	0
CUE	0	-0.3	0	0	-0.2	0	1.0	1.7	3.6	4.7	0.2	4.7	0	0	3.4	2.8	2.1	0
REV	0	-0.3	0	0	-0.2	0	1.0	1.7	3.6	4.7	0.2	4.7	0	0	3.4	2.8	2.1	0
REF.NO.		Q3007			Q4001			Q4002			Q4003			Q4004				C
MODE	E	В	С	E	В	C	E	В	С	E	В	С	E	В	С			
STOP	. 0	0	0	11.2	11.8	11.9	11.9	11.9	0	0	0	0	0	0.1	0.2			
REC	0	0	0	11.1	11.8	11.9	11.9	11.2	11.8	0	-0.3	11.5	0	0.1	0			
PLAY	0	0.7	0	11.1	11.8	12.0	11.9	11.9	0	0	0	0	0	0.1	0.2			
CUE	0	0.7	0	-				,										
REV	0	0.7	0															

MODE	REF.NO.										IC3	001								
REC 7.3 11.7 ★ 7.3 2.0 5.5 0.8 5.5 0.8	MODE	1	2	3	4	5	6	7	8	9								<u> </u>		T T
PLAY 0 0 0 ★ 0 -0.3 0 -0.3 0 -0.4	STOP	0	0	*	0	-0.3	0	-0.3	0	-0.4										
CUE	REC	7.3	11.7	*	7.3	2.0	5.5	0.8	5.5	0.8										
REV 0 0 0 ★ 0 -0.3 0 -0.3 0 -0.3   C3002   C3	PLAY	0	0	*	0	-0.3	0	-0.3	0	-0.4										
NODE   1	CUE	0	0	*	0	-0.5	0	-0.5	0	-0.9										
MODE 1 2 3 4 5 6 7 8 9 10 11 12 13 14		0	0	*	0	-0.3	0	-0.3	0	-0.3										
STOP	REF.NO.										IC3	002								
REC 0.1 0 0 0 0 0 0 5.5 2.4 0 0 0 0 0.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MODE	1	2	3	4	5	6	7 ::	8	9	10	11	12	13	14					
PLAY 4.7 0.8 0.7 0 0.7 0.8 0 2.5 2.7 2.5 1.7 2.3 0 4.7	STOP	0.1	0	0	0	0	0 '	0	4.9	0	0	0.1	0.1	0	0.1					
CUE	REC	0.1	0	0	0	0	0	5.5	2.4	0	0	0	0.1	0	0					
REV	PLAY	4.7	0.8	0.7	0	0.7	0.8	0	2.5	2.7	2.5	1.7	2.3	0	4.7					
REF.NO.   IC4001	CUE	4.6	0.7	0.7	0	0.7	0.8	0	2.5	2.7	2.4	1.7	2.2	0	4.7					
MODE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18   STOP 11.2 5.4 5.5 5.5 5.5 5.5 5.6 0 0 0 5.5 5.6 5.4 5.5 0.2 5.4 0 5.0 4.6 5.6   REC 11.2 4.8 5.5 0.1 5.6 5.6 0 0 5.6 5.6 5.4 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5		4.6	0.8	0.7	0	0.7	0.8	0	2.5	2.6	2.4	1.7	2.2	0	4.6					
STOP 11.2 5.4 5.5 5.5 5.5 5.5 5.6 0 0 0 5.5 5.6 5.4 5.5 0.2 5.4 0 5.0 4.6 5.6 REC 11.2 4.8 5.5 0.1 5.6 5.6 0 0 0 5.6 5.6 5.4 5.6 0.2 5.3 5.0 5.0 4.6 5.6 PLAY 11.1 5.6 5.5 5.5 5.5 5.5 5.5 0 0 0 5.6 5.5 5.3 5.5 0 5.3 5.2 5.2 0 5.6 EFF.NO.    Columb	REF.NO.										IC4	001					1			
REC 11.2 4.8 5.5 0.1 5.6 5.6 0 0 0 5.6 5.6 5.4 5.6 0.2 5.3 5.0 5.0 4.6 5.6 PLAY 11.1 5.6 5.5 5.5 5.5 5.5 5.5 0 0 0 5.6 5.5 5.5 5.5 0 0 5.3 5.2 5.2 0 5.6 PLAY 11.1 5.6 5.6 5.5 5.5 5.5 5.5 0 0 0 5.6 5.5 5.5 5.5 0 0 5.3 5.2 5.2 0 5.6 PLAY 11.1 5.6 5.6 5.5 5.5 5.5 5.5 5.5 0 0 0 0 5.6 5.5 5.5 5.5 0 0 5.3 5.2 5.2 0 5.6 PLAY 11.1 5.6 5.6 5.5 5.5 5.5 5.5 5.5 5.5 0 0 0 0 5.6 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	MODE	1	2	3	4	5	6	7	- 8	9	10	11	.12	13	14	15	16	17	18	100
PLAY 11.1 5.6 5.5 5.5 5.5 5.5 5.5 0 0 0 5.6 5.5 5.3 5.5 0 5.8 5.2 0 5.6    REF.NO.	STOP	11.2	5.4	5.5	5.5	5.5	5.6	0 .	0	5.5	5.6	5.4	5.5	0.2	5.4	0	5.0	4.6	5.6	
REF.NO. 104002 1 2 3 4 5 6 7 1 2 3 4 5 6 7 8 9 9 1 5 104003  STOP 0 0 0 0 0 4.2 11.2 0.1 0.1 0.1 0.2 0 0.2 0 0.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		11.2		<del></del>	0.1	5.6	5.6	0	0	5.6	5.6	5.4	5.6	0.2	5.3	5.0	5.0	4.6	5.6	
MODE 1 2 3 4 5 6 7 1 2 3 4 5 6 7 8 9		11.1	5.6	5.5	5.5	5.5	5.5	0	0	5.6	5.5	5.3	5.5	0	5.3	5.2	5.2	0	5.6	
STOP 0 0 0 0 4.2 11.2 0.1 0.1 0.2 0 0.2 0 0.1 0 0 0 0 0 REC 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	REF.NO.			,	IC4002										IC4003					
REC 0 0 0 0 4.2 11.2 0.1 0.1 0.3 0 0.3 0 0.1 0 0 0.8 PLAY 0 0 0 0 0 0.3 11.1 4.7 0.1 0.2 0 0.4 0 0.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		11		<del> </del>	. 4			<u> </u>			3				7	8				· ·
PLAY 0 0 0 0 0 0.3 11.1 4.7 0.1 0.2 0 0.4 0 0.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0	0	0	0	4.2	11.2	0.1	0.1		0	0.2	0	0.1	0	0 .	. 0			
REF.NO. TP3001 TP3002 TP3003 TP3006 TP3007 TP3008 TP3009 TP3010 TP3011 TP4002 TP3009 TP3010 TP3011 TP4002 TP3001 TP3010 TP3011 TP4002 TP3010 TP3011 TP4002 TP3010 TP3010 TP3010 TP3011 TP4002 TP3010 TP3011 TP4002 TP3011 TP4001 TP4001 TP4002 TP3011 TP4001 TP4001 TP4002 TP3011 TP4001 TP4001 TP4001 TP4002 TP3011 TP4001 T		0	0	0	0	4.2	11.2	0.1	0.1	0.3	0	0.3	0	0.1	0	0	0.8			
MODE         TP3001         TP3002         TP3003         TP3006         TP3006         TP3007         TP3008         TP3009         TP3010         TP3011         TP4001         TP4002           STOP         0         0         0         0         4.9         1.0         1.1         0         5.0         0         0           REC         5.5         0         0         0         0         1.0         1.0         0         5.0         0         0           PLAY         0         0         0         2.7         2.5         1.1         1.2         0         5.0         0         0		0	0	0	0	0.3	11.1	4.7	0.1	0.2	0	0.4	- 0	0.1	0	0 ·	0			
MODE STOP 0 0 0 0 0 4.9 1.0 1.1 0 5.0 0 0 0 0 REC 5.5 0 0 0 0 0 1.0 1.0 1.0 0 5.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		TP3001	TP3002	TP3003	TP3005	TP3006	TP3007	TP3008	TP3000	TP3010	TP3011	TP4001	TP4002							
REC 5.5 0 0 0 0 0 1.0 1.0 0 5.0 0 0 0 0 PLAY 0 0 0 0 2.7 2.5 1.1 1.2 0 5.0 0 0		11 0001	11 0002	11 0000	11 0000	11 0000		11 3000	11 0000	11 0010	11 3011	11 4001	11 4002							11.
PLAY 0 0 0 0 2.7 2.5 1.1 1.2 0 5.0 0 0						<u> </u>			1.1											
					<del></del>	<del></del>														
			0	0	0			1.1		0		0	0							
	CUE	0	0	0 .	0	2.7	2.5	1.1	1.2	0 .	4.9									-
REV 0 0 0 0 2.7 2.5 1.1 1.2 0 5.0	REV	0	0.	0 -	0	2.7	2.5	1.1	1.2	0	5.0									

#### MAIN C.B.A.



LUMINANCE SIGNAL PROCESS SECTION VOLTAGE MEASUREMENT:
1. CUE, REVIEW.

COLOR BAR SIGNAL IN SLP MODE. 2.OTHERS COLOR BAR SIGNAL IN SP MODE.

★: UNMEASURABLE OR UNNECESSARY TO MEASURE.

AUDIO SECTION **VOLTAGE MEASUREMENT:** 

1. CUE, REVIEW. MONO SCOPE SIGNAL IN SLP MODE. MONO SCOPE SIGNAL IN SP MODE.

LUMINANCE CIRCUIT

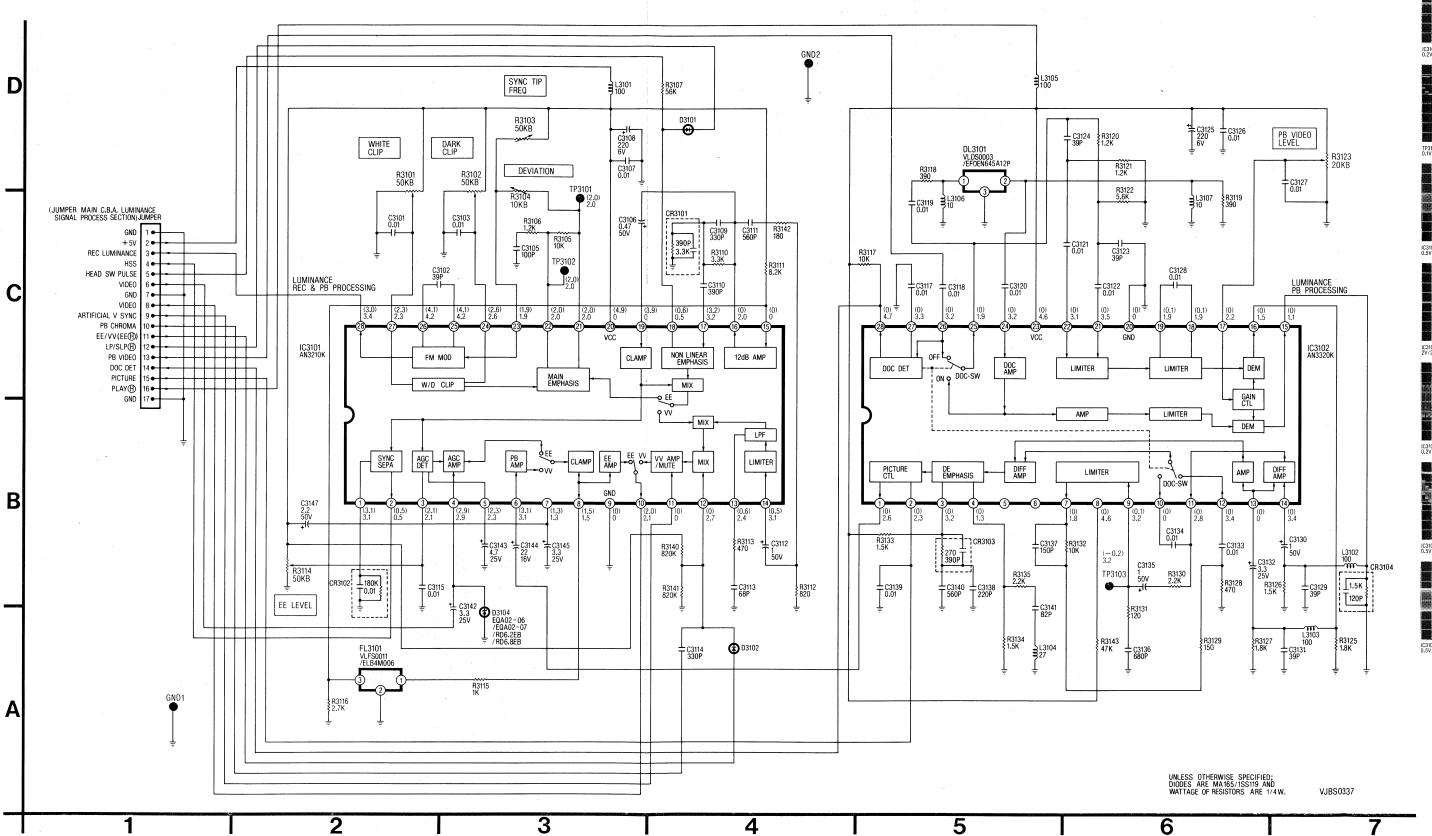
#### **LUMINANCE SCHEMATIC DIAGRAM**

**VOLTAGE MEASUREMENT:** COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

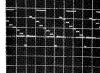
SPECIAL NOTE: ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE

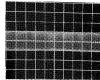
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.









IC3102 ® PLAY, SP. LP. SLP. 0.5V/5msec, div.







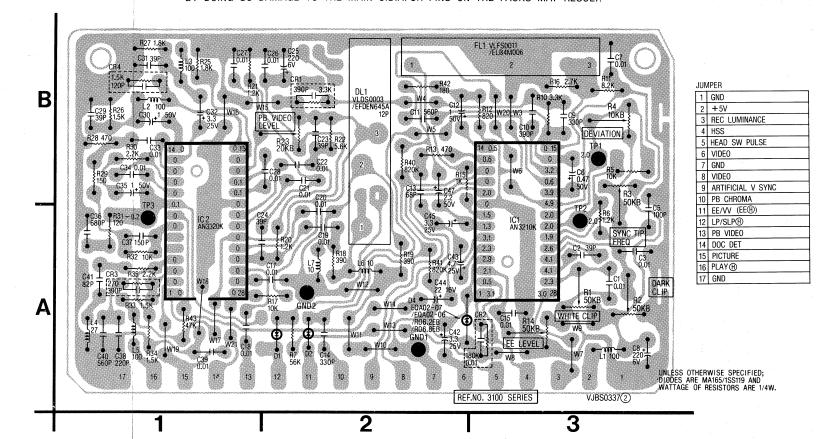


NOTE: REF. NO **EXAMP** 

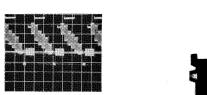
(R3102

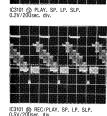
VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

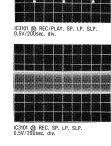
CAUTION:DO NOT BEND OR SPREAD APART THE LUMINANCE AND CHROMINANCE PACKS.
BY DOING SO DAMAGE TO THE MAIN C.B.A. OR PINS ON THE PACKS MAY RESULT.

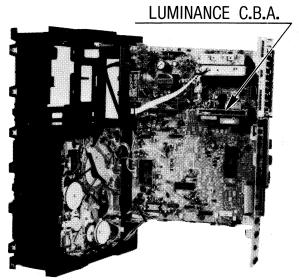


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3.1	0.4	2.1	2.9	2.3	3.1	1.3	1.5	0			2.6	2.5	3.1	1.3	2.0	3.2	2.1	3.9	4.9
						T			IC3	3101	,	,			,				
			24	25			28												
2.0	2.0	1.9	2.6	4.1	4.1	2.3	3.0			ļ									
2.0	2.0	1.9	2.6	4.1	4.1	2.3	3.0			ļ.,									
2.0	2.0	1.9	2.6	4.2	4.2	2.3	3.4												
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1	2	3	4	5	6	7	8	9	10	. 11	12	13	14	15	16	17	18	19	20
0	0	0	0	*	*	0	0	0.1	0 -	0	0	0	0	0	0	0	0	0	0
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2.6	2.3	3.2	1.3	*	*	1.8	4.6	3.2	0	2.8	3.4	0	3.4	1.1	1.5	2.2	1.9	1.9	0
2.6	2.4	3.3	1.4	*	*	1.9	4.6	3.2	3.5	2.8	3.5	3.4	3.4	1.0	1.5	2.2	1.9	1.9	0
2.6	2.3	3.3	1.4	*	*	1.8	4.6	3.2	3.4	2.8	3.5	3.5	3.4	1.1	1.5	2.2	1.9	1.9	0
									IC3	102									
21	22	23	24	25	26	27	28												
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0	0	0	0	0	0	0 .	- 0												
3.5	3.1	4.6	3.2	1.9	3.2	3.3	4.7												
3.5	3.2	4.6	3.2	1.9	3.2	3.1	0												
3.5	3.1	4.6	3.2	1.8	3.2	3.2	4.6			1									
113101	TP3102	1P3103																	
2.0	2.0	.0			200														
2.0	2.0	0.2														1			
2.0	2.0	3.2																	
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2.0	2.0	3.2																	
	2.0 2.0 2.0 2.0 1 0 0 2.6 2.6 2.6 2.6 3.5 3.5 3.5 TP3101 2.0 2.0 2.0	3.1 0.4 3.1 0.5 3.1 0.5 3.1 0.5 3.1 0.5 3.1 0.3 3.1 0.4  21 22 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 3.5 3.1 3.5 3.2 3.5 3.1  TP3101 TP3102 2.0	3.1         0.4         2.1           3.1         0.5         2.1           3.1         0.5         2.1           3.1         0.3         2.1           3.1         0.4         2.1           21         22         23           2.0         2.0         1.9           2.0         2.0         1.9           2.0         2.0         1.9           2.0         2.0         1.9           1         2         3           0         0         0           0.6         2.3         3.2           2.6         2.4         3.3           2.6         2.4         3.3           2.6         2.4         3.3           2.6         2.3         3.3           21         22         23           0         0         0           0         0         0           0         0         0           3.5         3.1         4.6           3.5         3.1         4.6           3.5         3.1         4.6           3.5         3.1         4.6           3.5	3.1         0.4         2.1         2.9           3.1         0.5         2.1         2.9           3.1         0.5         2.1         2.9           3.1         0.3         2.1         2.9           3.1         0.4         2.1         2.9           21         22         23         24           2.0         2.0         1.9         2.6           2.0         2.0         1.9         2.6           2.0         2.0         1.9         2.6           2.0         2.0         2.0         2.6           2.0         2.0         1.9         2.5           1         2         3         4           0         0         0         0           2.0         2.0         2.0         2.6           2.0         2.0         2.0         2.6           2.0         2.0         2.0         2.6           2.0         2.0         2.0         2.6           2.0         2.0         2.0         2.6           2.3         3.2         1.3         1.4           2.6         2.3         3.2         1.3	3.1     0.4     2.1     2.9     2.3       3.1     0.5     2.1     2.9     2.3       3.1     0.5     2.1     2.9     2.3       3.1     0.3     2.1     2.9     2.3       3.1     0.4     2.1     2.9     2.3       3.1     0.4     2.1     2.9     2.3       21     22     23     24     25       2.0     2.0     1.9     2.6     4.1       2.0     2.0     1.9     2.6     4.1       2.0     2.0     1.9     2.6     4.2       2.0     2.0     1.9     2.6     4.2       2.0     2.0     1.9     2.6     4.2       2.0     2.0     1.9     2.5     4.2       2.0     2.0     1.9     2.5     4.2       2.0     2.0     1.9     2.5     4.2       2.0     2.0     1.9     2.5     4.2       2.0     2.0     1.9     2.5     4.2       2.0     2.0     1.9     2.5     4.2       2.0     2.0     2.6     4.2     2.0       2.0     2.0     3.3     1.4     ★       2.6     2.4     3	3.1     0.4     2.1     2.9     2.3     3.1       3.1     0.5     2.1     2.9     2.3     3.1       3.1     0.5     2.1     2.9     2.3     3.1       3.1     0.3     2.1     2.9     2.3     3.1       3.1     0.4     2.1     2.9     2.3     3.1       21     22     23     24     25     26       2.0     2.0     1.9     2.6     4.1     4.1       2.0     2.0     1.9     2.6     4.1     4.1       2.0     2.0     1.9     2.6     4.2     4.2       2.0     2.0     2.0     2.6     4.2     4.2       2.0     2.0     1.9     2.6     4.2     4.2       2.0     2.0     1.9     2.5     4.2     4.2       2.0     2.0     1.9     2.5     4.2     4.2       2.0     2.0     1.9     2.5     4.2     4.2       2.0     2.0     1.9     2.5     4.2     4.2       2.0     2.0     0.0     0     ★     ★       2.6     2.3     3.2     1.3     ★     ★       2.6     2.4     3.3     1.4<	3.1     0.4     2.1     2.9     2.3     3.1     1.3       3.1     0.5     2.1     2.9     2.3     3.1     1.3       3.1     0.5     2.1     2.9     2.3     3.1     1.3       3.1     0.3     2.1     2.9     2.3     3.1     1.3       3.1     0.4     2.1     2.9     2.3     3.1     1.3       21     22     23     24     25     26     27       2.0     2.0     1.9     2.6     4.1     4.1     2.3       2.0     2.0     1.9     2.6     4.1     4.1     2.3       2.0     2.0     1.9     2.6     4.2     4.2     2.3       2.0     2.0     1.9     2.6     4.2     4.2     2.3       2.0     2.0     1.9     2.6     4.2     4.2     2.3       2.0     2.0     1.9     2.6     4.2     4.2     2.3       2.0     2.0     1.9     2.6     4.2     4.2     2.3       2.0     2.0     1.9     2.5     4.2     4.2     2.3       2.0     2.0     1.9     2.5     4.2     4.2     2.3       2.0     2.0	3.1     0.4     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.5     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.5     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.3     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.4     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.4     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.4     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.4     2.1     2.9     2.3     3.1     1.3     1.5       3.1     0.4     2.1     2.9     2.3     3.1     1.3     1.5       2.0     2.0     1.9     2.6     4.1     4.1     2.3     3.0       2.0     2.0     1.9     2.6     4.1     4.1     2.3     3.0       2.0     2.0     1.9     2.6     4.2     4.2     2.3     3.4       2.0     2.0     1.9     2.6     4.2     4.2     2.3     3.4       2.0     2.0     2.0     2.6     <	3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0         2.0           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.4         2.3         3.4           2.0         2.0         2.6         4.2         4.2         2.3         3.4	1         2         3         4         5         6         7         8         9         10           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0         2.0           2.0	3.1       0.4       2.1       2.9       2.3       3.1       1.3       1.5       0       1.9       0         3.1       0.5       2.1       2.9       2.3       3.1       1.3       1.5       0       2.0       0         3.1       0.5       2.1       2.9       2.3       3.1       1.3       1.5       0       2.1       0         3.1       0.3       2.1       2.9       2.3       3.1       1.3       1.5       0       2.1       0.1         3.1       0.4       2.1       2.9       2.3       3.1       1.3       1.5       0       2.1       0.1         3.1       0.4       2.1       2.9       2.3       3.1       1.3       1.5       0       2.0       0.1         2.0       2.0       1.9       2.6       4.1       4.1       2.3       3.0 <td< td=""><td>1         2         3         4         5         6         7         8         9         10         11         12           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0</td><td>1         2         3         4         5         6         7         8         9         10         11         12         13           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6         2.5           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6         2.5           2.0         &lt;</td><td>1         2         3         4         5         6         7         8         9         10         11         12         13         14           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6         0.5           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0        </td><td>1         2         3         4         5         6         7         8         9         10         11         12         13         14         15           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6         0.5         0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         0           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3           1.2         2.3         2.4         2.5</td><td>1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0         2.0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6         0.5         0         0           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3         2.0           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3         2.0           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0         1         1         2         3.4         1.9         2.6         4.2&lt;</td><td>1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0         2.0         3.2           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         0         2.0         0         0         0.6         0.5         0         2.0         0         0         0.6         0.5         0         0         3.2         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         1.3         2.0         2.0         1.0         2.6         2.1         1.1         2.6         2.2         3.1         1.3         2.0         2.0         1.0         1.2         2.6         4.1         4.1         4.2         3.3         0         0         0         1.0         1.0         0</td><td>1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17         18           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0         2.0         3.2         1.5           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         0         2.0         0         0         0         0         0         0         0         0         3.2         0.5           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         1.3         2.0         2.0         1.0         2.6         2.1         2.0         2.0         1.0         1.2         6         2.5         3.1         1.3         2.0         2.0         1.9         2.6         4.1         4.1         2.3</td><td>  1</td></td<>	1         2         3         4         5         6         7         8         9         10         11         12           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0	1         2         3         4         5         6         7         8         9         10         11         12         13           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6         2.5           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0.1         2.6         2.5           2.0         <	1         2         3         4         5         6         7         8         9         10         11         12         13         14           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6         0.5           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0	1         2         3         4         5         6         7         8         9         10         11         12         13         14         15           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6         0.5         0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         0           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3           1.2         2.3         2.4         2.5	1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0         2.0           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.0         0         0         0.6         0.5         0         0           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3         2.0           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0.1         2.6         2.5         3.1         1.3         2.0           2.0         2.0         1.9         2.6         4.1         4.1         2.3         3.0         1         1         2         3.4         1.9         2.6         4.2<	1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0         2.0         3.2           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         0         2.0         0         0         0.6         0.5         0         2.0         0         0         0.6         0.5         0         0         3.2         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         1.3         2.0         2.0         1.0         2.6         2.1         1.1         2.6         2.2         3.1         1.3         2.0         2.0         1.0         1.2         2.6         4.1         4.1         4.2         3.3         0         0         0         1.0         1.0         0	1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17         18           3.1         0.4         2.1         2.9         2.3         3.1         1.3         1.5         0         1.9         0         4.3         0.7         0.6         0         2.0         3.2         1.5           3.1         0.5         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         0         2.0         0         0         0         0         0         0         0         0         3.2         0.5           3.1         0.3         2.1         2.9         2.3         3.1         1.3         1.5         0         2.1         0         2.7         2.4         3.1         1.3         2.0         2.0         1.0         2.6         2.1         2.0         2.0         1.0         1.2         6         2.5         3.1         1.3         2.0         2.0         1.9         2.6         4.1         4.1         2.3	1

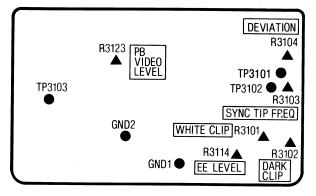








LOCATIONS OF TEST POINTS & ADJUSTMENT POINTS



**VOLTAGE MEASUREMENT:** 1. CUE, REVIEW. COLOR BAR SIGNAL IN SLP MODE. 2. OTHERS COLOR BAR SIGNAL IN SP MODE.

★: UNMEASURABLE OR UNNECESSARY TO MEASURE.

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A...R2, REF. NO. 3100 SERIES SCHEMATIC DIAGRAM...R3102 (R3102 IS ABBREVIATED TO R2)

L3102 100

1.5K

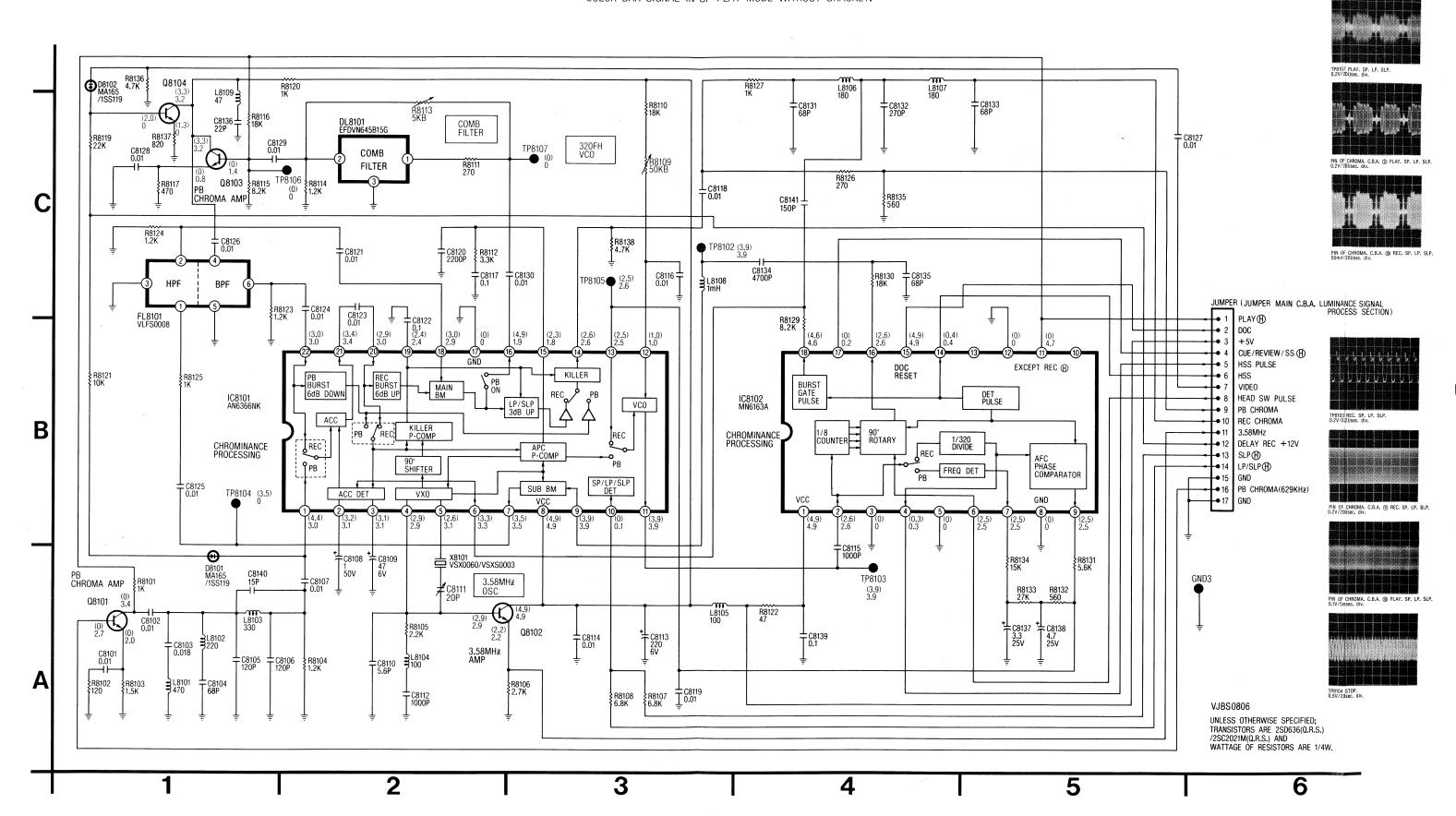
T120P

R3126 1.5K

士C3129 丁39P

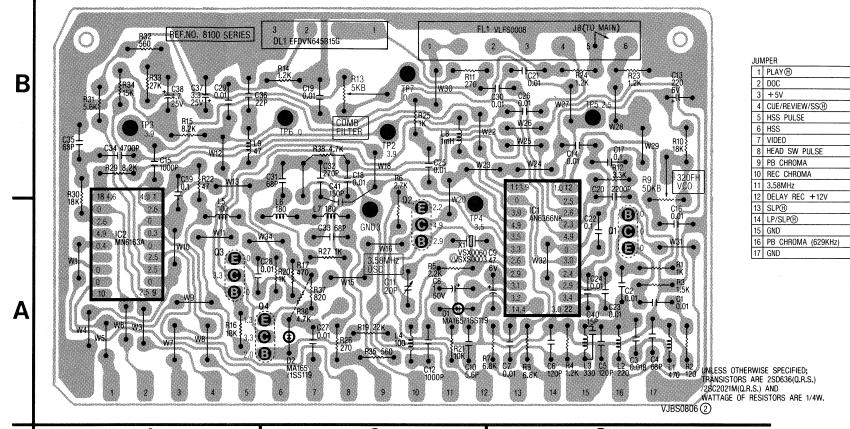
ECIAL LY SENSITIVE

PB VIDEO LEVEL



VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

CAUTION:DO NOT BEND OR SPREAD APART THE LUMINANCE AND CHROMINANCE PACKS.
BY DOING SO DAMAGE TO THE MAIN C.B.A. OR PINS ON THE PACKS MAY RESULT.

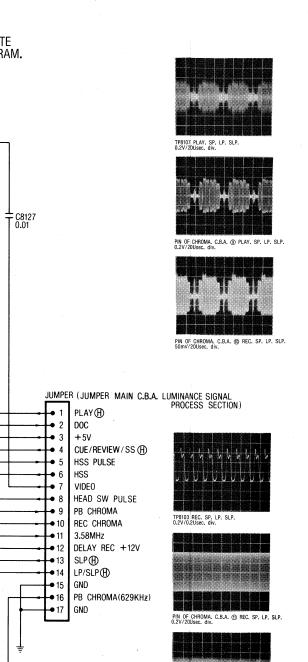


3

REF.NO.		Q8101			Q8102			Q8103			Q8104						
MODE	E	В	С	E	В	С	Ε	В	С	Е	В	С			1		
STOP	0	0	0.1	2.3	2.9	4.9	0	0	4.9	0	0	4.9					
REC	0	0	0	2.2	2.9	4.9	0	0	3.3	1.3	2.0	3.3					
PLAY	2.0	2.7	3.4	2.2	2.9	4.9	0.8	1.4	3.2	0	0	3.2				-	
CUE	1.9	2.6	3.4	2.2	2.9	4.9	0.8	1.4	3.2	0	0	3.2					
REV	2.0	2.7	3.4	2.2	2.9	4.8	0.7	1.4	3.2	0	0	3.2					
REF.NO.			<del></del>							ICE	3101						 
					T		<del></del>					T	T	T	T	T	

1 2.2										100	101									
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	- 14	15	16	17	18	19	20
STOP	3.0	2.9	3.1	2.9	3.1	3.3	3.5	4.9	3.9	2.9	3.9	1.0	2.5	0	1.8	1.9	0	2.9	2.9	2.9
REC	4.4	3.2	3.1	2.9	2.6	3.3	3.5	4.9	3.9	0	3.9	1.0	2.5	2.6	2.3	4.9	0	3.0	2.4	2.9
PLAY	3.0	3.1	3.1	2.9	3.1	3.3	3.5	4.9	3.9	0.1	3.9	1.0	2.5	2.6	1.8	1.9	0	2.9	2.4	3.0
CUE	2.9	3.1	3.1	2.9	3.1	3.3	3.5	4.9	3.9	3.0	3.9	0.7	2.5	2.6	1.8	1.9	0	2.9	2.5	3.0
REV	2.9	3.1	3.1	2.9	3.1	3.3	3.5	4.9	3.9	2.9	3.9	0.9	2.5	2.6	1.8	1.9	0	2.9	2.5	3.0
REF.NO.	IC8	101								IC8	102									
MODE	21	22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
STOP	3.3	3.0	4.9	2.6	0	0.3	0	0	2.5	0	2.5	*	0	0	*	0.5	4.9	2.5	0	4.6
REC	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	*	0	0	*	0.4	4.9	2.6	0	4.6
PLAY	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	*	4.7	0	*	0.4	4.9	2.6	0.2	4.6
CUE	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	*	4.7	0	*	0.5	4.9	2.6	3.9	4.6
REV	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	*	4.7	0	*	0.4	4.9	2.5	3.9	4.6
REF.NO. MODE	TP8102	TP8103	TP8104	TP8105	TP8106	TP8107														
STOP	4.0	4.0	3.5	2.6	0	0														
REC	3.9	3.9	3.5	2.5	0	0														
PLAY	3.9	3.9	0	2.6	0	0														
CUE	3.9	3.9	3.4	2.5	0	0														
REV	3.9	3.9	3.5	2.5	. 0	0														

CHROMINANCE C.B.A. VEPS0806A



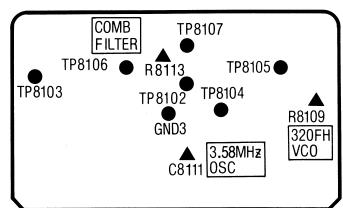
VJBS0806

UNLESS OTHERWISE SPECIFIED; TRANSISTORS ARE 2SD636(Q.R.S.) /2SC2021M(Q.R.S.) AND WATTAGE OF RESISTORS ARE 1/4W.

6

CHROMINANCE C.B.A.

LOCATIONS OF TEST POINTS & ADJUSTMENT POINTS



ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. VOLTAGE MEASUREMENT: EXAMPLE: C.B.A...R2, REF. NO. 8100 SERIES SCHEMATIC DIAGRAM...R8102 (R8102 IS ABBREVIATED TO R2)

1. CUE, REVIEW.

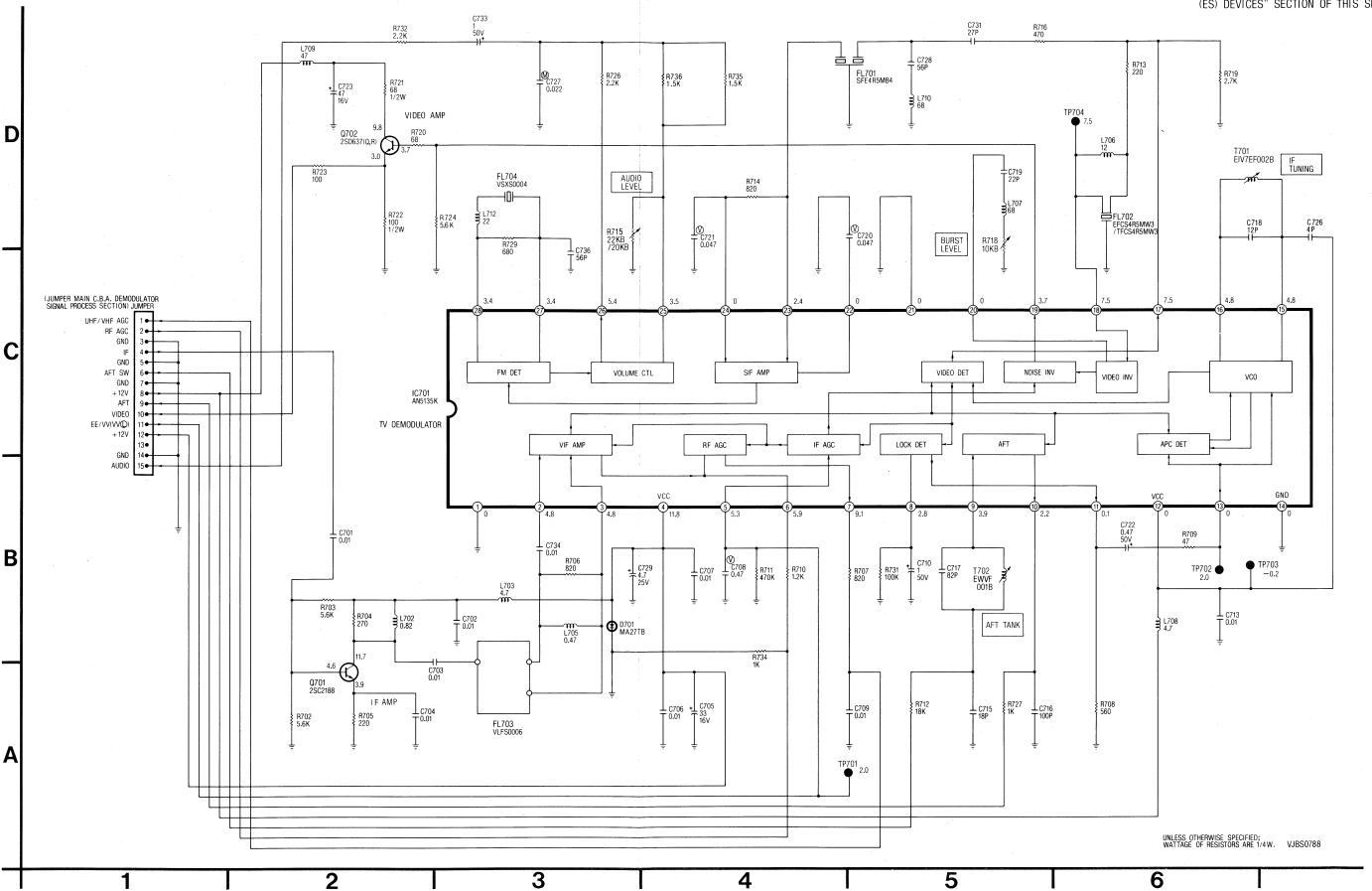
COLOR BAR SIGNAL IN SLP MODE. 2. OTHERS

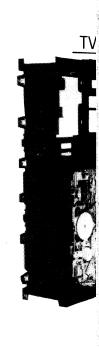
COLOR BAR SIGNAL IN SP MODE. ★: UNMEASURABLE OR UNNECESSARY TO MEASURE.

TV DEMODULATOR CIRCUIT

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DE
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPI
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICAL
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



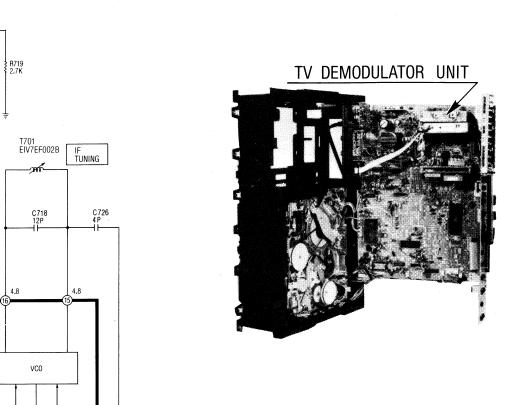


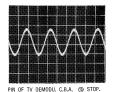




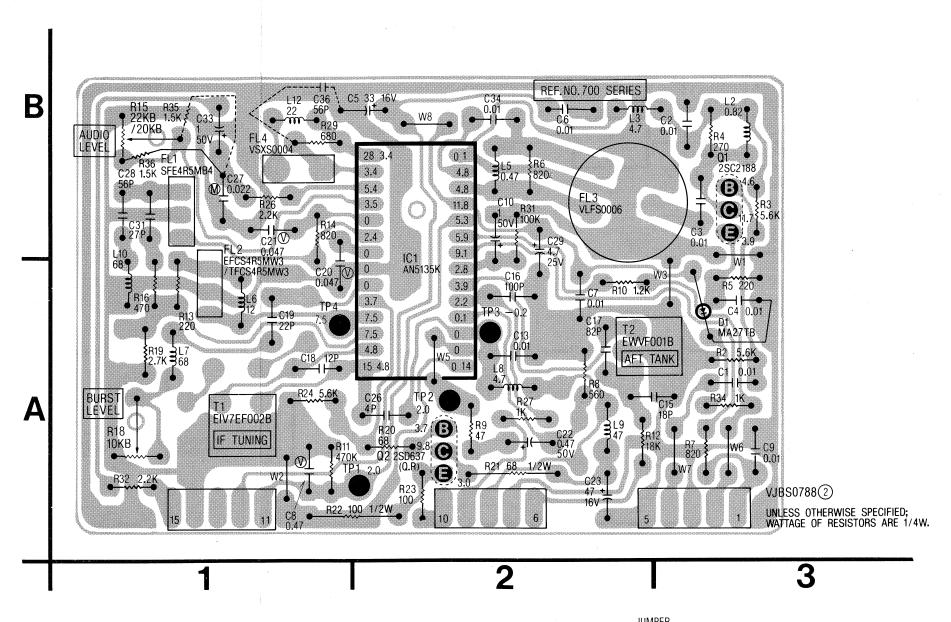
NOTE : REF. NO. ON. C.B., EXAMPLE: C.B.A... SCHEMATIC DI/ (R702 IS ABBREVI

ISE SPECIFIED; SISTORS ARE 1/4W. VJBS0788

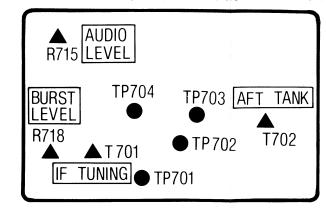




NOTE: REF. NO. ON. C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A.···R2, REF.NO. 700 SERIES SCHEMATIC DIAGRAM···R702 (R702 IS ABBREVIATED TO R2)

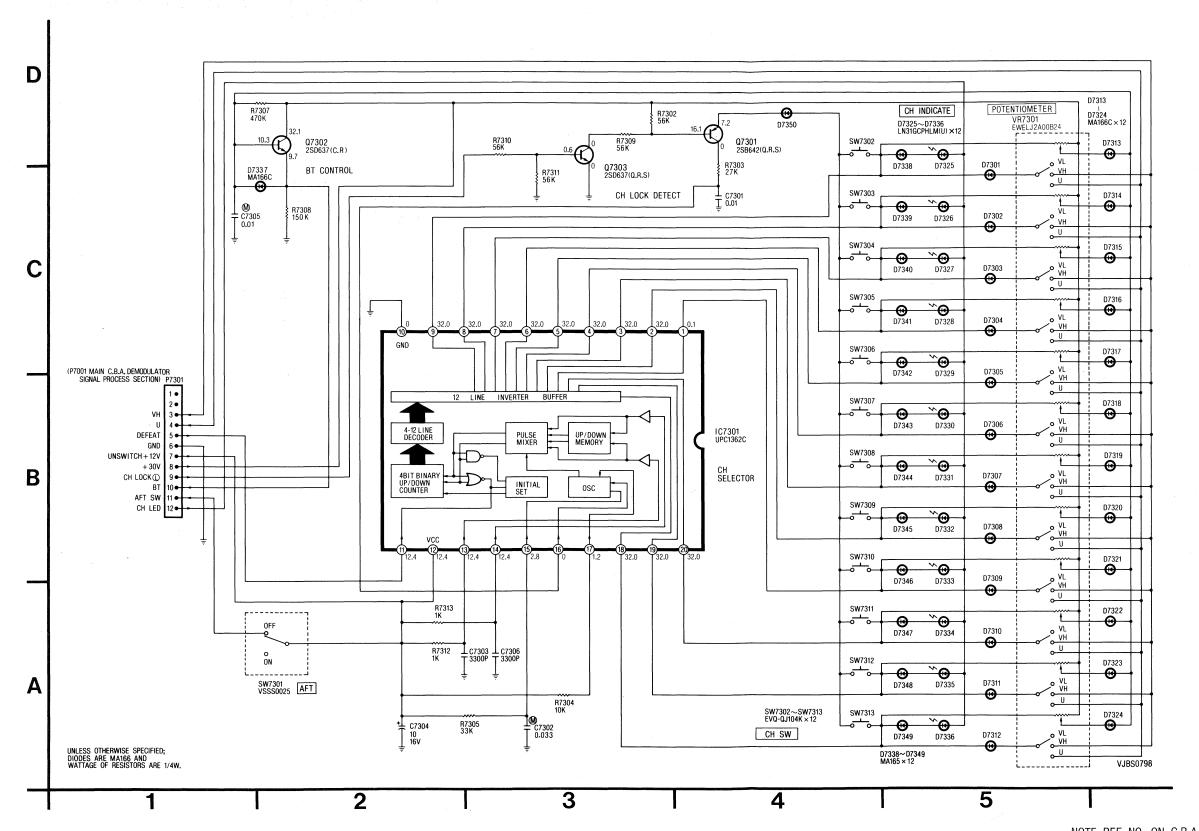


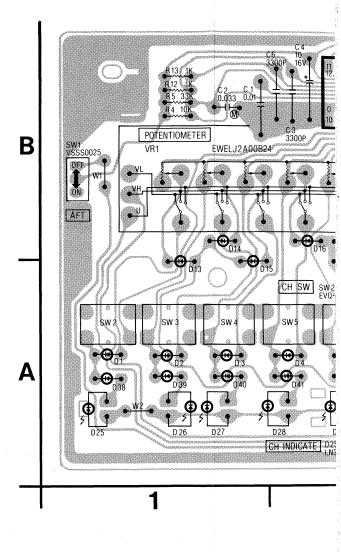
#### LOCATIONS OF TEST POINTS & ADJUSTMENT POINTS

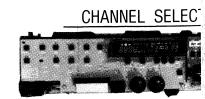


JUN	MPER
1	UHF/VHF AGC
2	RF AGC
3	GND
4	IF .
5	GND
6	AFT SW
7	GND
8	+12V
9	AFT
10	VIDEO
11	EE/VV(VV①)
12	+12V
13	
14	GND
15	AUDIO

(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.





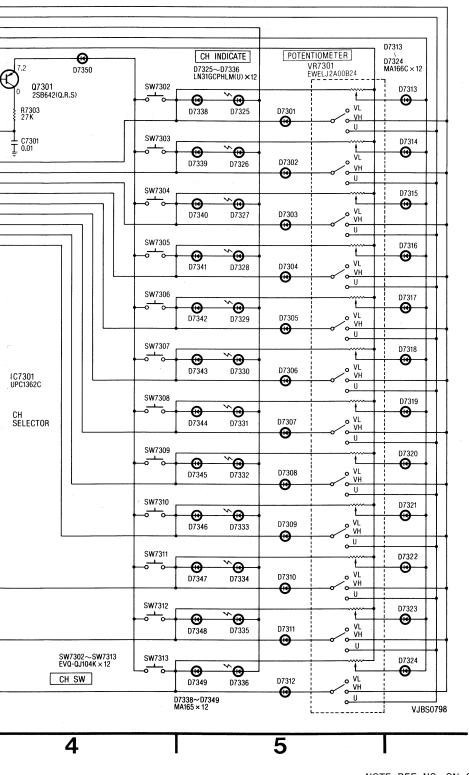


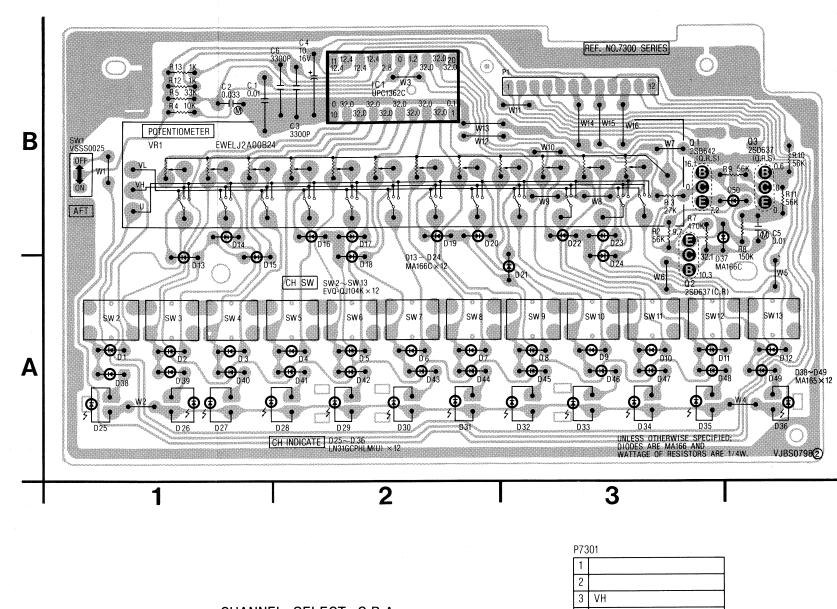
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A.···R2, REF. NO. 7300 SERIES SCHEMATIC DIAGRAM···R7302 (R7302 IS ABBREVIATED TO R2)

COLOR BAR SIGNAL IN STOP MODE SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

## CHANNEL SELECT C.B.A. VEPS0798A (PV-1222) VEPS0798B (PV-1230,PV-1225)

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN STOP MODE.





CHANNEL SELECT C.B.A.

P7301

1

2

3 VH

4 U

5 DEFEAT

6 GND

7 UNSWITCH + 12V

8 + 30V

9 CH LOCK©

10 BT

11 AFT SW

12 CH LED

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A....R2, REF. NO. 7300 SERIES SCHEMATIC DIAGRAM...R7302 (R7302 IS ABBREVIATED TO R2)

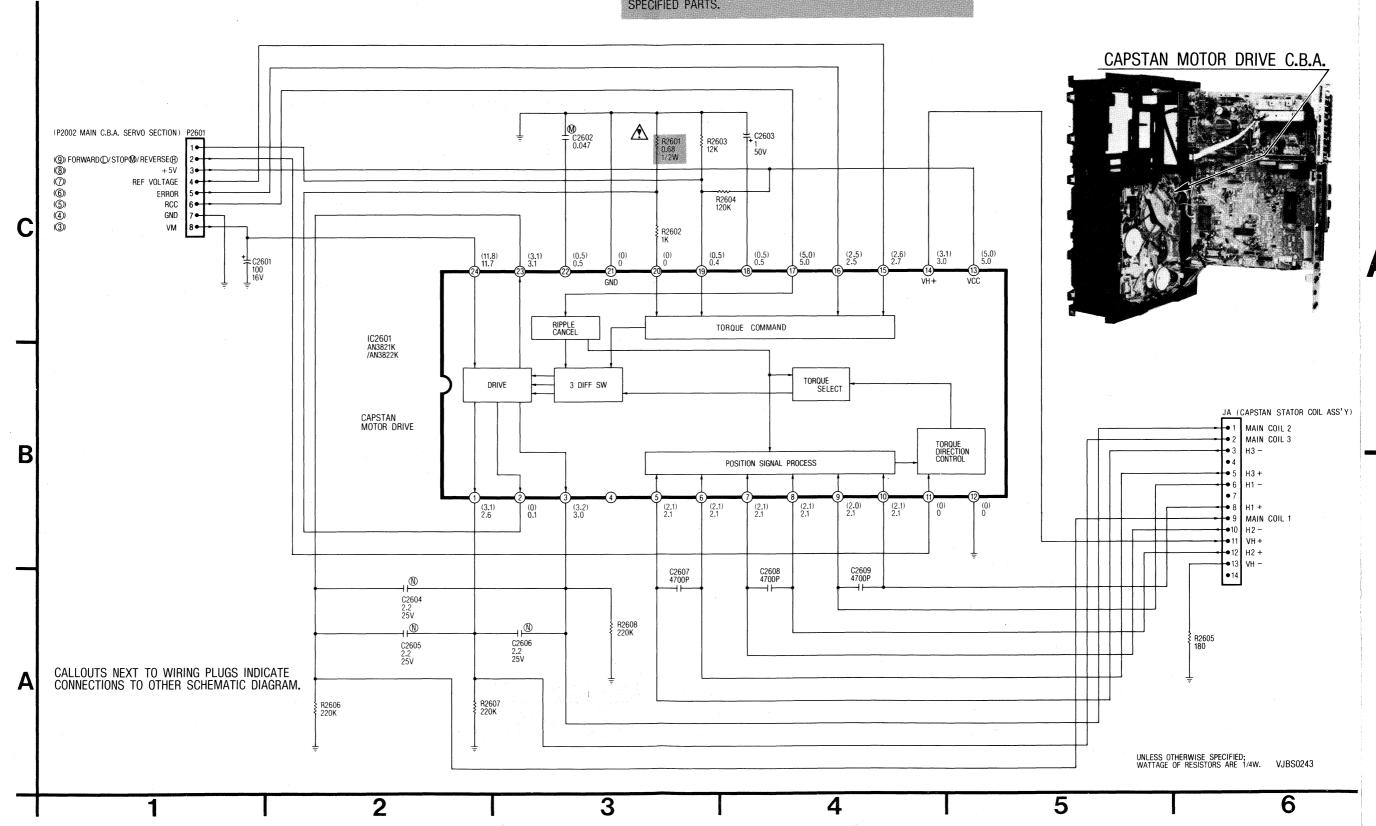
OUTS NEXT TO WIRING PLUGS INDICATE CTIONS TO OTHER SCHEMATIC DIAGRAM.

4-10 CAPSTAN MOTOR DRIVE CIRCUIT

#### CAPSTAN MOTOR DRIVE SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN A HAVE SPECIAL
CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE
SPECIFIED PARTS.

**VOLTAGE MEASUREMENT:** COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.



NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A...R2, REF. NO. 2600 SERIES SCHEMATIC DIAGRAM...R2602 (R2602 IS ABBREVIATED TO R2)

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

VOLTAC 1. CU 2. OT

REF.NO.
MODE
STOP
REC
PLAY
CUE
REV
F.ADV.
SLOW(1/4)
REF.NO.
MODE
STOP
REC
PLAY
CUE
REV
F.ADV.

SL0W(1/4)

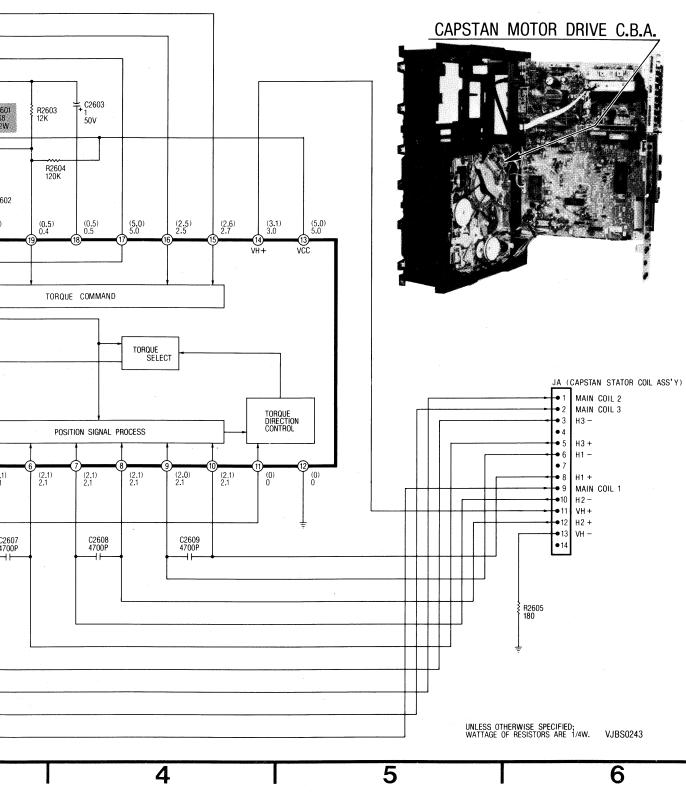
TANT SAFETY NOTICE:

NENTS IDENTIFIED BY THE SIGN A HAVE SPECIAL

CTERISTICS IMPORTANT FOR SAFETY.

REPLACED ANY OF THESE COMPONENTS, USE ONLY THE

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET. COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.



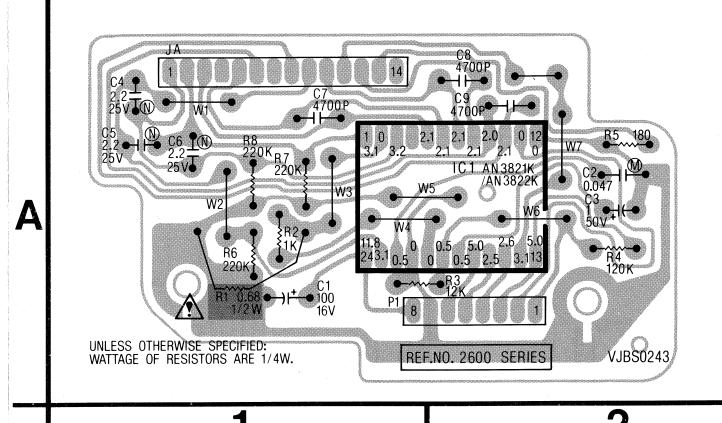
E: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS. EXAMPLE: C.B.A....R2, REF. NO. 2600 SERIES SCHEMATIC DIAGRAM...R2602 (R2602 IS ABBREVIATED TO R2)

SPECIAL NOTE: ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

#### CAPSTAN MOTOR DRIVE C.B.A. VEPS0243A1

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN A HAVE SPECIAL
CHARACTERISTICS IMPORTANT FOR SAFETY.
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SPECIFIED PARTS.



VOLTAGE MEASUREMENT: 1. CUE, REVIEW.

COLOR BAR SIGNAL IN SLP MODE.

COLOR BAR SIGNAL IN SP MODE.

★: UNMEASURABLE OR UNNECESSARY TO MEASURE.

1	
2	FORWARD()/STOP(M)/REVERSE(H)
3	+5V
4	REF VOLTAGE
5	ERROR
6	RCC
7	GND
8	VM

P2	bl	)2
	I	MAIN COIL 2
2	2	MAIN COIL 3
3	3	H3 —
[4	I	
	įΤ	H3+
(	5	H1 —
7	1	
8		H1+
ç		MAIN COIL 1
10	I	H2 —
11	I	VH+
12		H2+
13	Γ	VH-
14	Ι	

REF.NO.										IC2	601									
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	2.0	0	2.0	*	2.0	2.1	2.1	2.0	2.0	2.1	2.1	0	4.9	3.0	2.6	2.2	5.0	0.6	0.5	0
REC	3.1	0	3.2	*	2.1	2.1	2.1	2.1	2.0	2.1	0	0	5.0	3.1	2.6	2.5	5.0	0.5	0.5	0
PLAY	2.6	0.1	3.0	*	2.1	2.1	2.1	2.1	2.1	2.1	0	0	5.0	3.0	2.7	2.5	5.0	0.5	0.4	0
CUE	4.8	0.1	4.8	*	2.1	2.1	2.1	2.1	2.1	2.1	0	0	4.9	3.0	2.6	2.5	5.0	0.5	0.5	0.1
REV	4.7	0.1	4.8	*	2.1	2.1	2.1	2.1	2.1	2.1	4.7	0	5.0	3.0	2.6	2.4	5.0	0.5	0.4	0.1
F.ADV.	2.3	0	2.2	*	2.0	2.1	2.1	2.1	2.1	2.1.	1.9	0	4.9	3.0	2.6	2.7	4.9	0.5	0.4	0
SL0W(1/4)	2.3	0	2.2	*	2.1	2.1	2.1	2.1	2.1	2.1	1.9	0	5.0	3.0	2.6	2.0	5:0	0.5	0.5	0
REF.NO.										IC2	601									
MODE	21	22	23	24	-															
STOP	0	0	2.0	11.8																
REC	0	0.5	3.1	11.8																
PLAY	0	0.5	3.1	11.7				100												
CUE	0	0.5	4.8	11.8																
REV	0	0.5	4.9	11.7																
F.ADV.	0	0.2	2.0	11.8																
SL0W(1/4)	0	0.1	2.2	11.8																

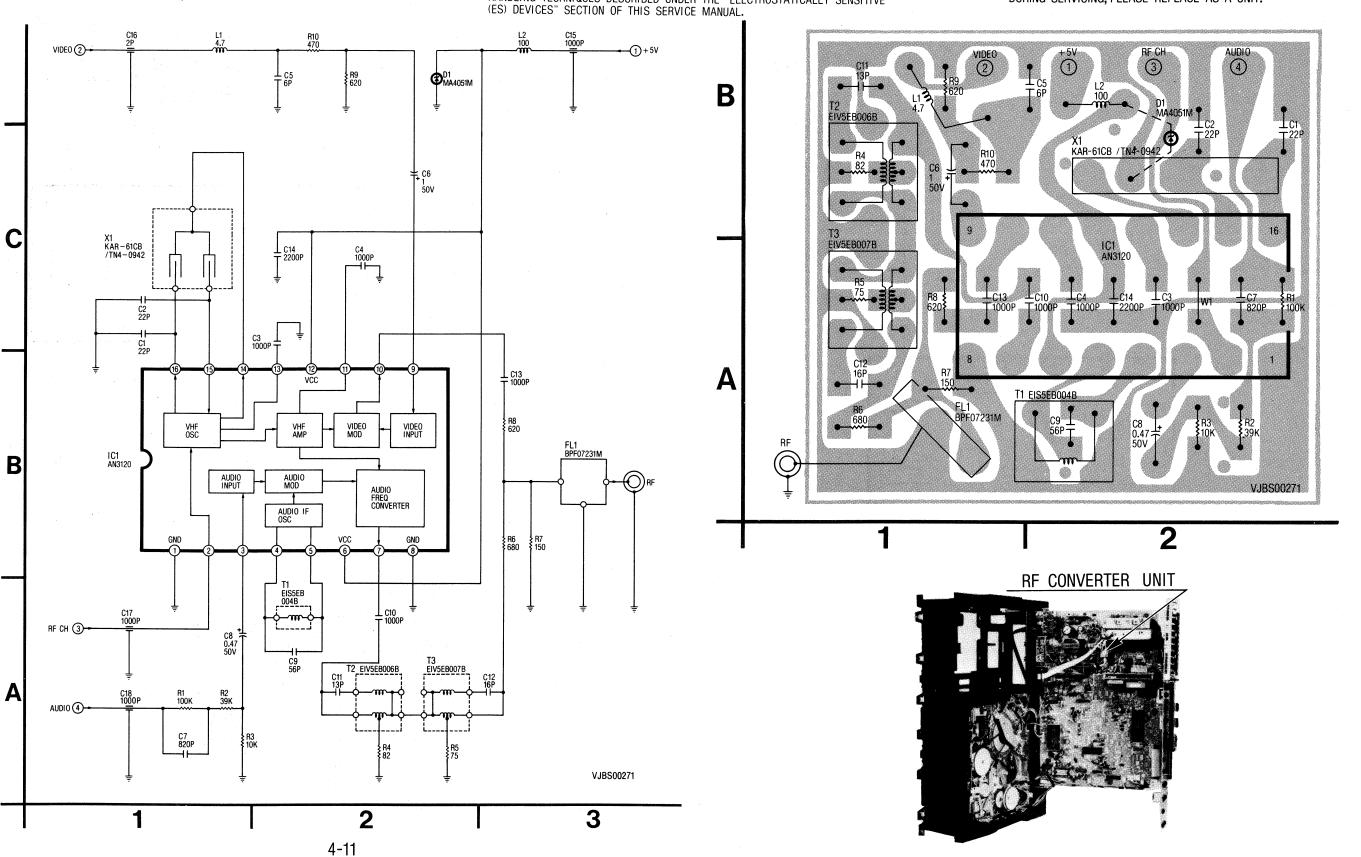
## RF CONVERTER SCHEMATIC DIAGRAM

## **RF CONVERTER UNIT (VEQS0252)**

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

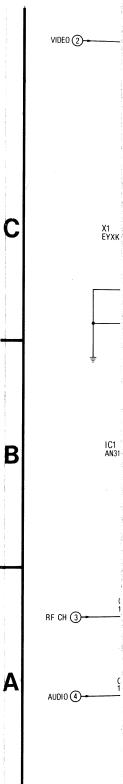
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

IMPORTANT NOTICE:
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SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



RF CONV

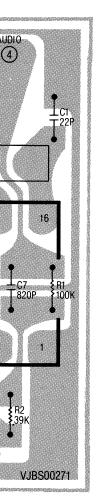
IMPORTAL IF UNIT I SPECIFIC, DURING §



## RF CONVERTER SCHEMATIC DIAGRAM

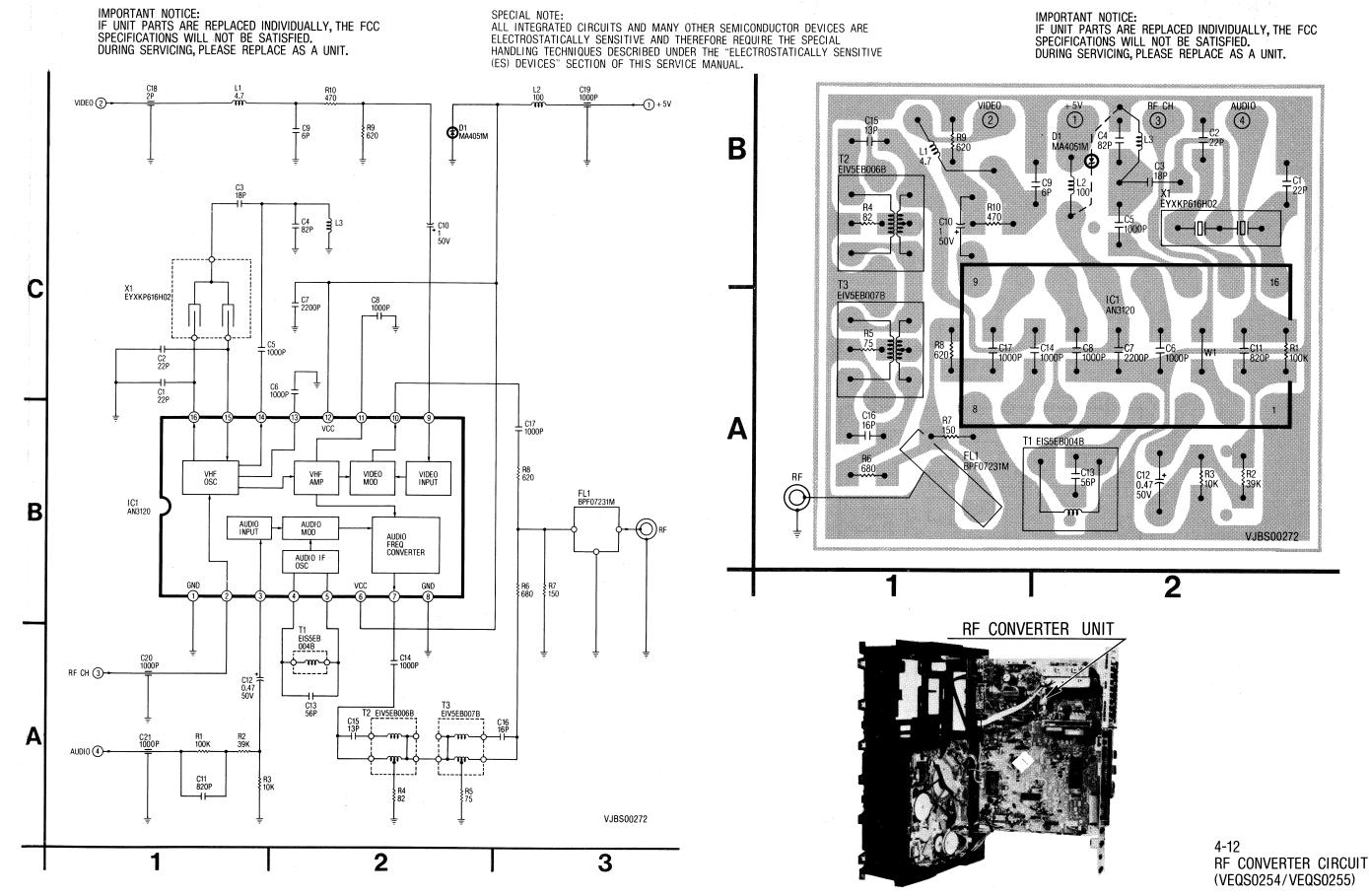
## **RF CONVERTER UNIT (VEQS0253)**

LY, THE FCC UNIT.



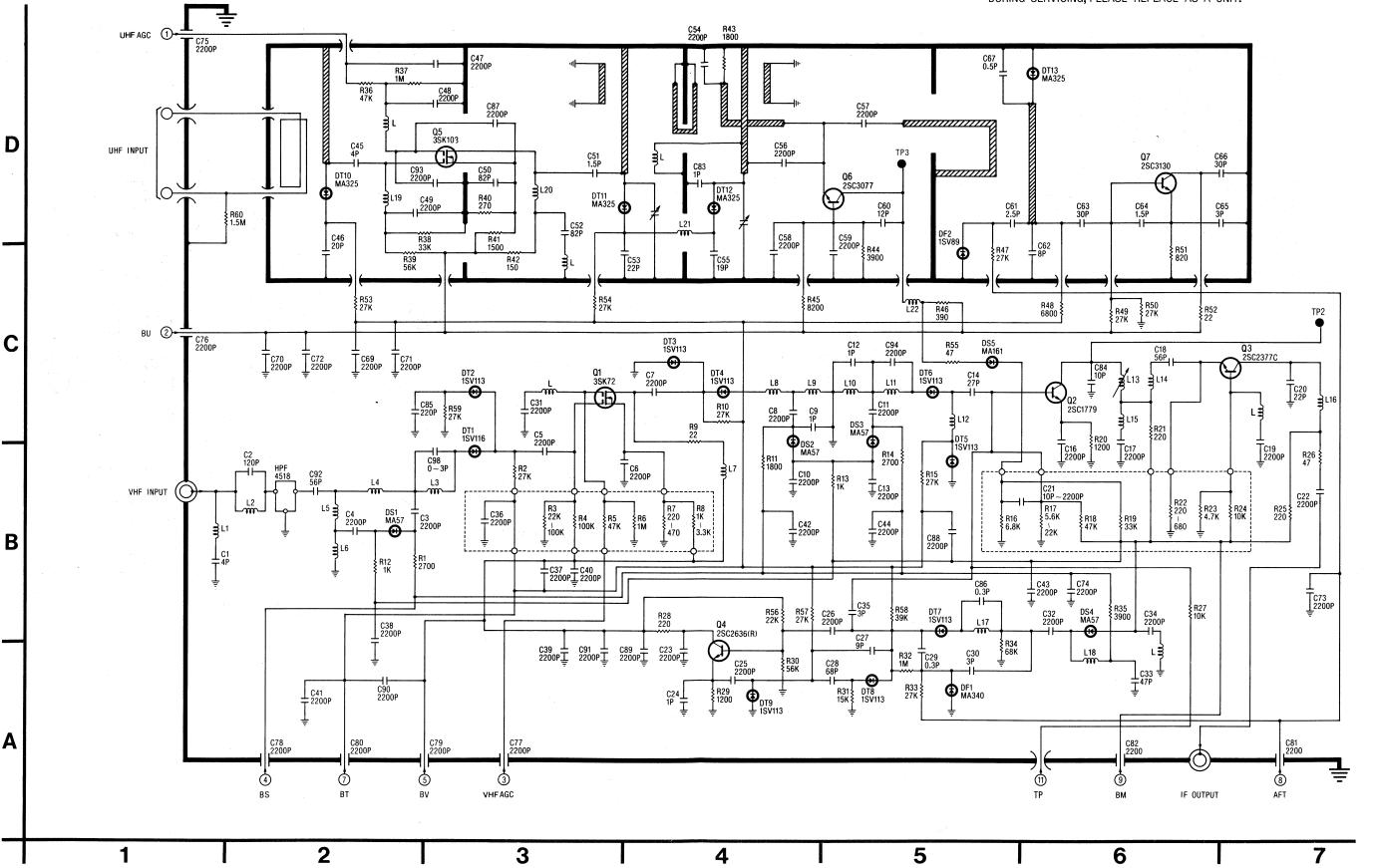
SPECIAL NOTE:
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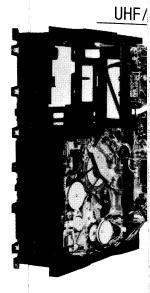
IMPORTANT NOTICE:
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DURING SERVICING, PLEASE REPLACE AS A UNIT.



## UHF/VHF TUNER SCHEMATIC DIAGRAM TNV56751F2R (PV-1230)

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



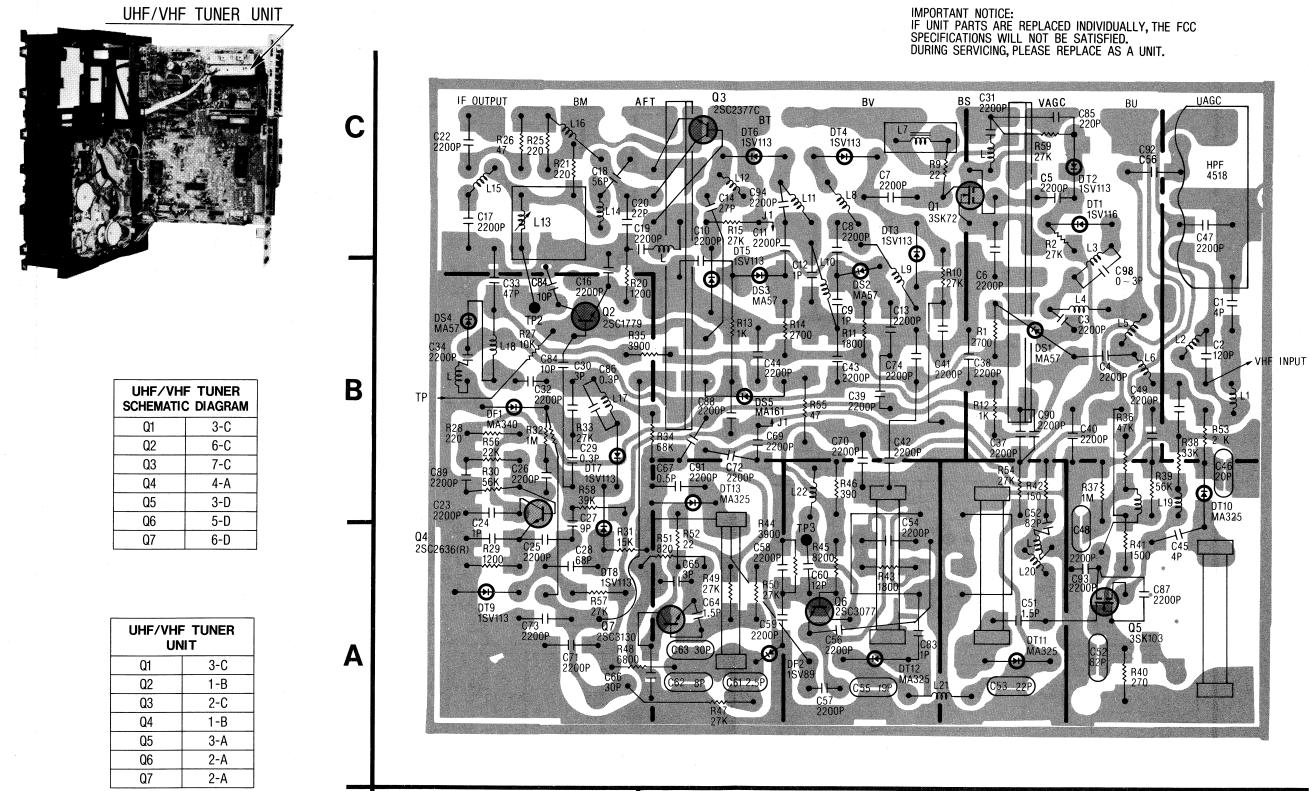


UHF SCHEI Q1 Q2 Q3 Q4 Q5 Q6

> Q1 Q2 Q3 Q4 Q5 Q6

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS A
ELECTROSTATICALLY SENSIT
HANDLING TECHNIQUES DESC
(ES) DEVICES" SECTION OF

## UHF/VHF TUNER UNIT TNV56751F2R (PV-1230)



SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

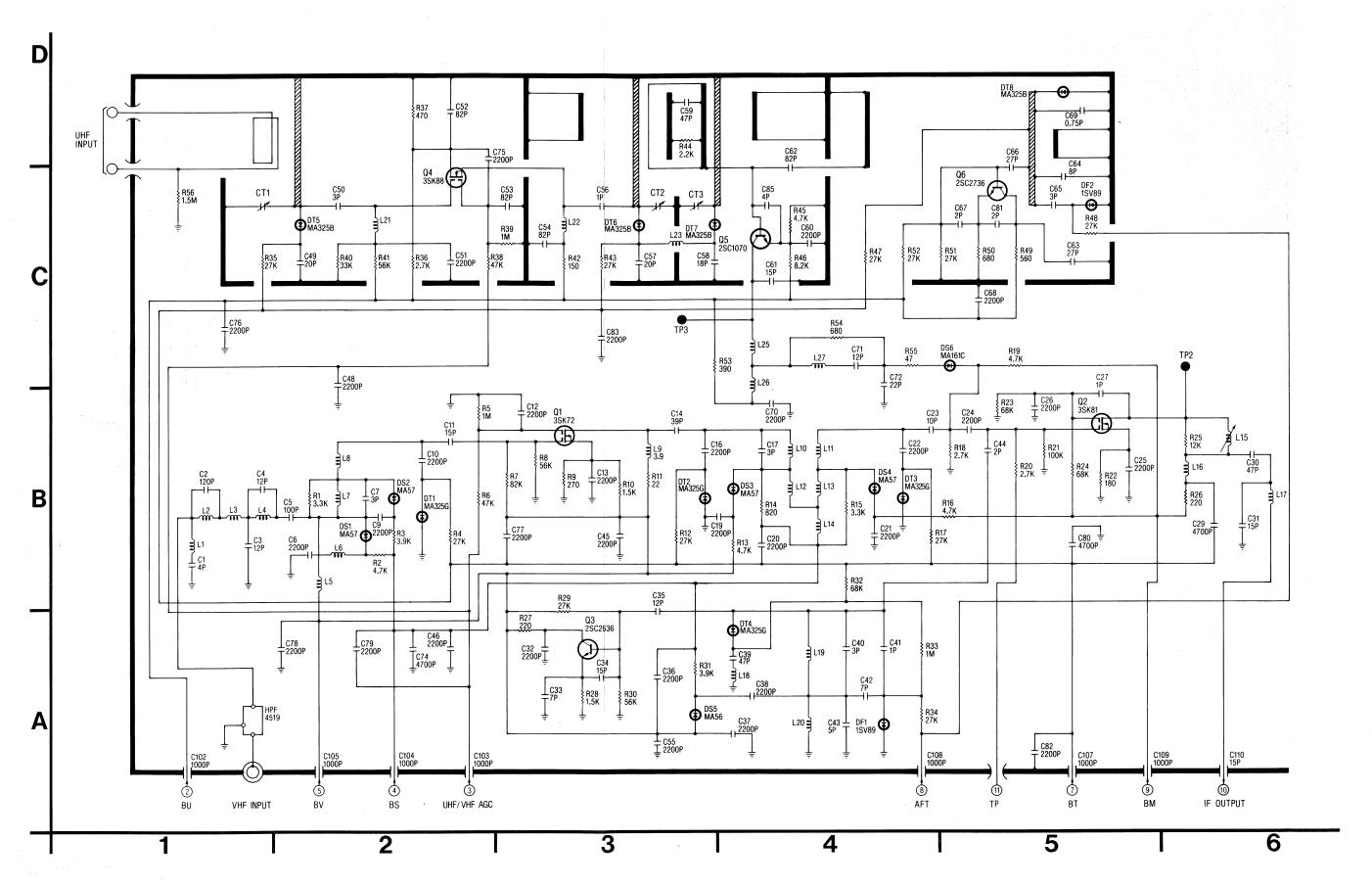
LY, THE FCC

Q3 2SC2377C

R26 47

UNIT.

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

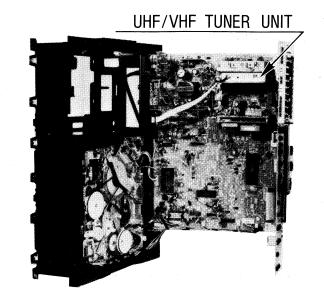




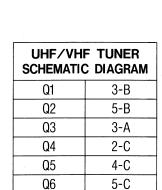
SPECIAL | ALL INTE( ELECTROS HANDLING (ES) DEVI

## UHF/VHF TUNER UNIT TNV76775F2R (PV-1222,PV-1225)

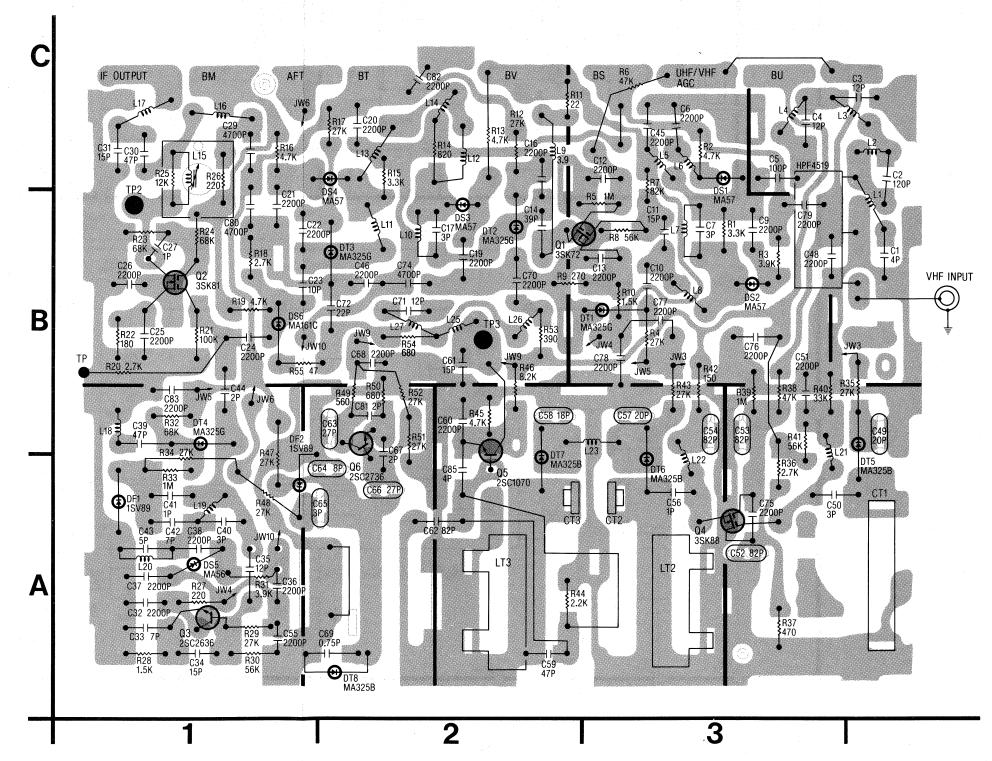
DIVIDUALLY, THE FCC TISFIED. CE AS A UNIT.



IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



	TUNER
Q1	3-B
Q2	1-B
Q3	1-A
Q4	3-A
<b>Q</b> 5	2-B
Q6	2-B



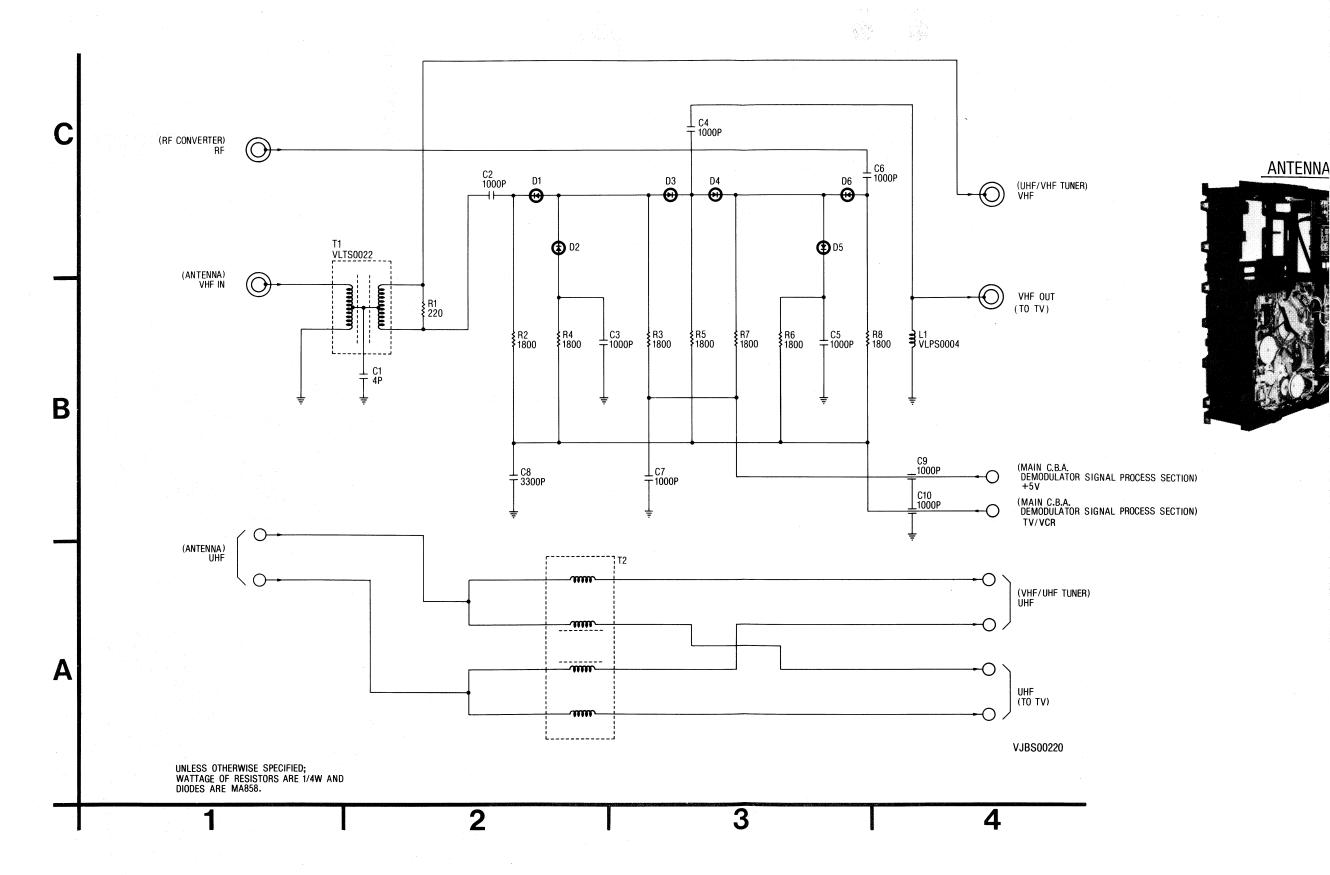
SPECIAL NOTE:
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IF OUTPUT

## ANTENNA TERMINAL SCHEMATIC DIAGRAM

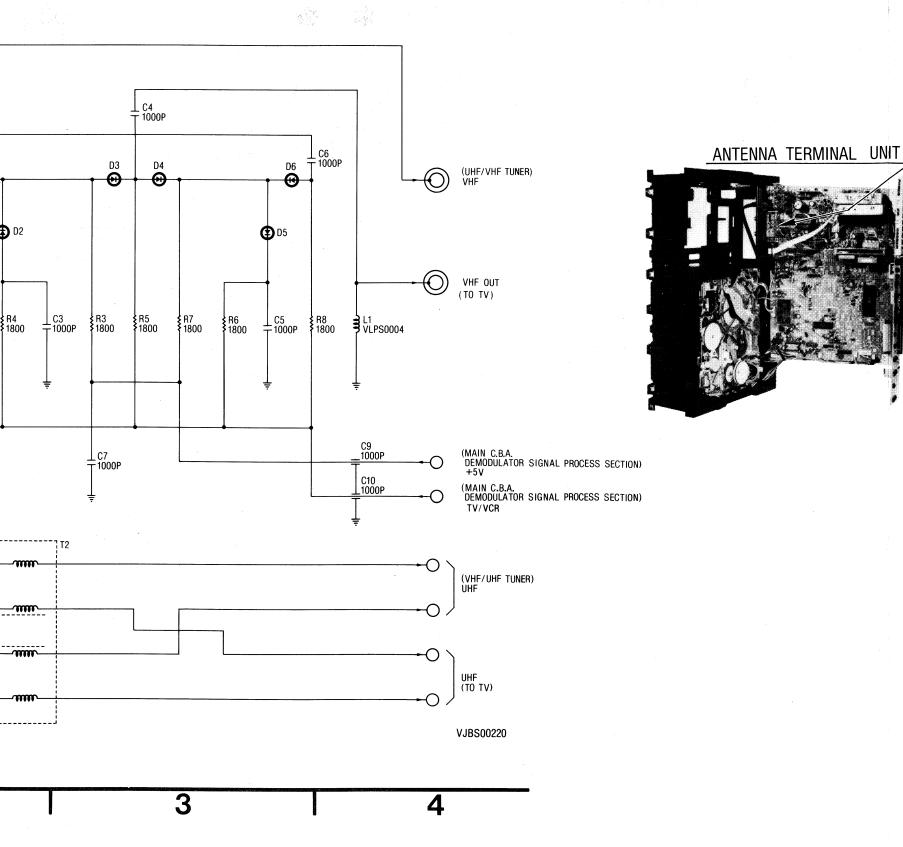
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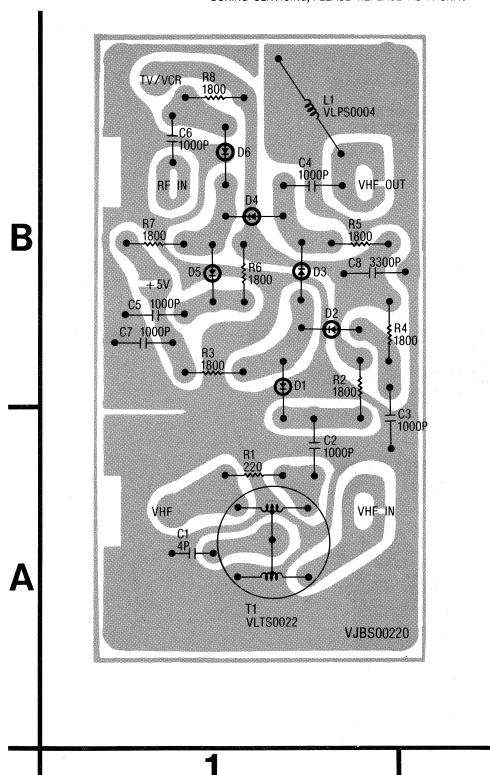
SPECIAL NOTE:
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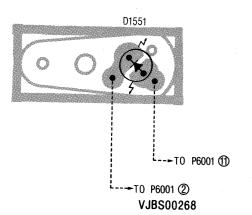
4-15 ANTENNA TERMINAL CIRCUIT

## **ANTENNA TERMINAL UNIT**

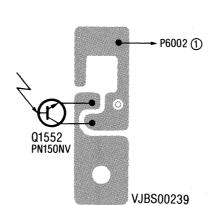
IMPORTANT NOTICE:
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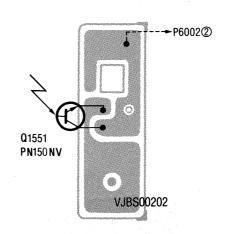
#### SENSOR LED C.B.A.



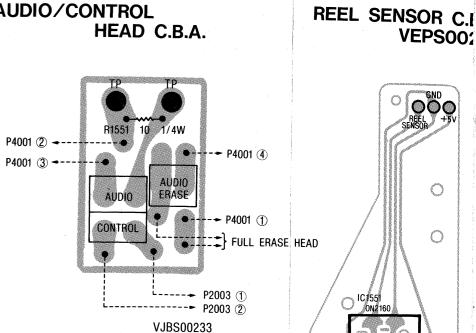
#### SUPPLY PHOTO TR C.B.A.



TAKEUP PHOTO TR C.B.A.



#### AUDIO/CONTROL HEAD C.B.A.

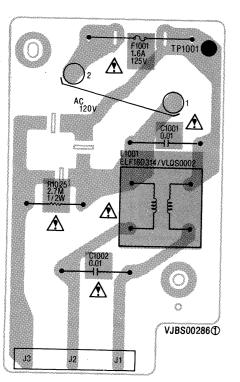


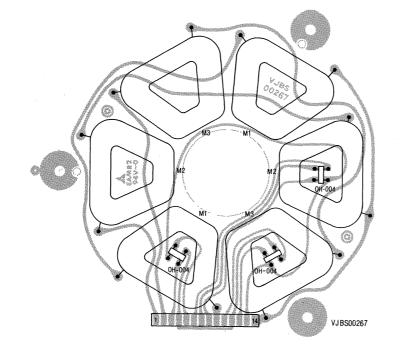
SPECIAL NOTE:
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#### LINE FILTER C.B.A. VEPS00286A

## CAPSTAN STATOR COIL ASS'Y VEMSO058

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN A HAVE SPECIAL
CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE
SPECIFIED PARTS.

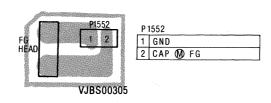


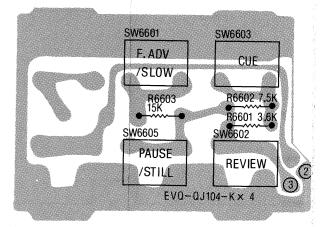


1	MAIN COIL 2
2	MAIN COIL 3
3	H3 -
4	
5	H3 +
6	H1 -
7	
8	H1 +
9	MAIN COIL 1
10	H2 -
11	VH +
12	H2 +
13	VH
14	

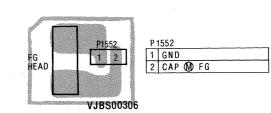
CAPSTAN FG C.B.A.

### WIRED TRANSMITTER (5FUNC

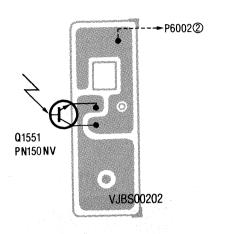




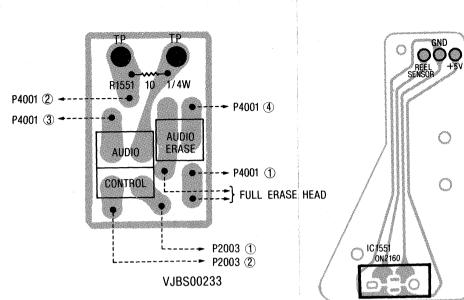
CAPSTAN FG C.B.A.



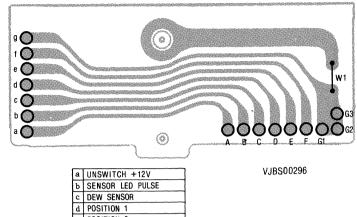
#### TAKEUP PHOTO TR C.B.A.



#### AUDIO/CONTROL HEAD C.B.A.



CONNECTION C.B.A.



e POSITION 2 f POSITION 3 g GND SUPPLY PHOTO TR C.B.A. TAKEUP PHOTO TR C.B.A.

AUDIO/CONTROL HEAD C.B.A.

REEL SENSOR C.B.A.

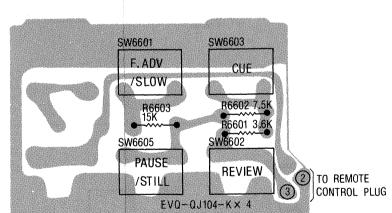
AL SENSITIVE

CES ARE





1 GND 2 CAP (M) FG



WIRED TRANSMITTER (5FUNCTION) UNIT

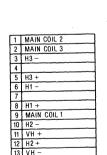
REEL SENSOR C.B.A.

**VEPS00269A** 

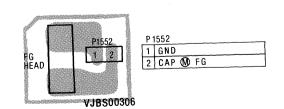
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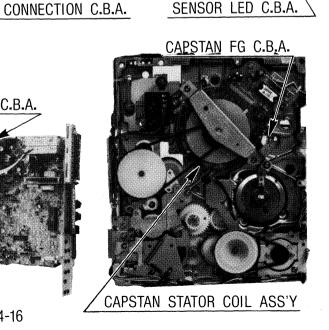
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VJBS00269



CAPSTAN FG C.B.A.





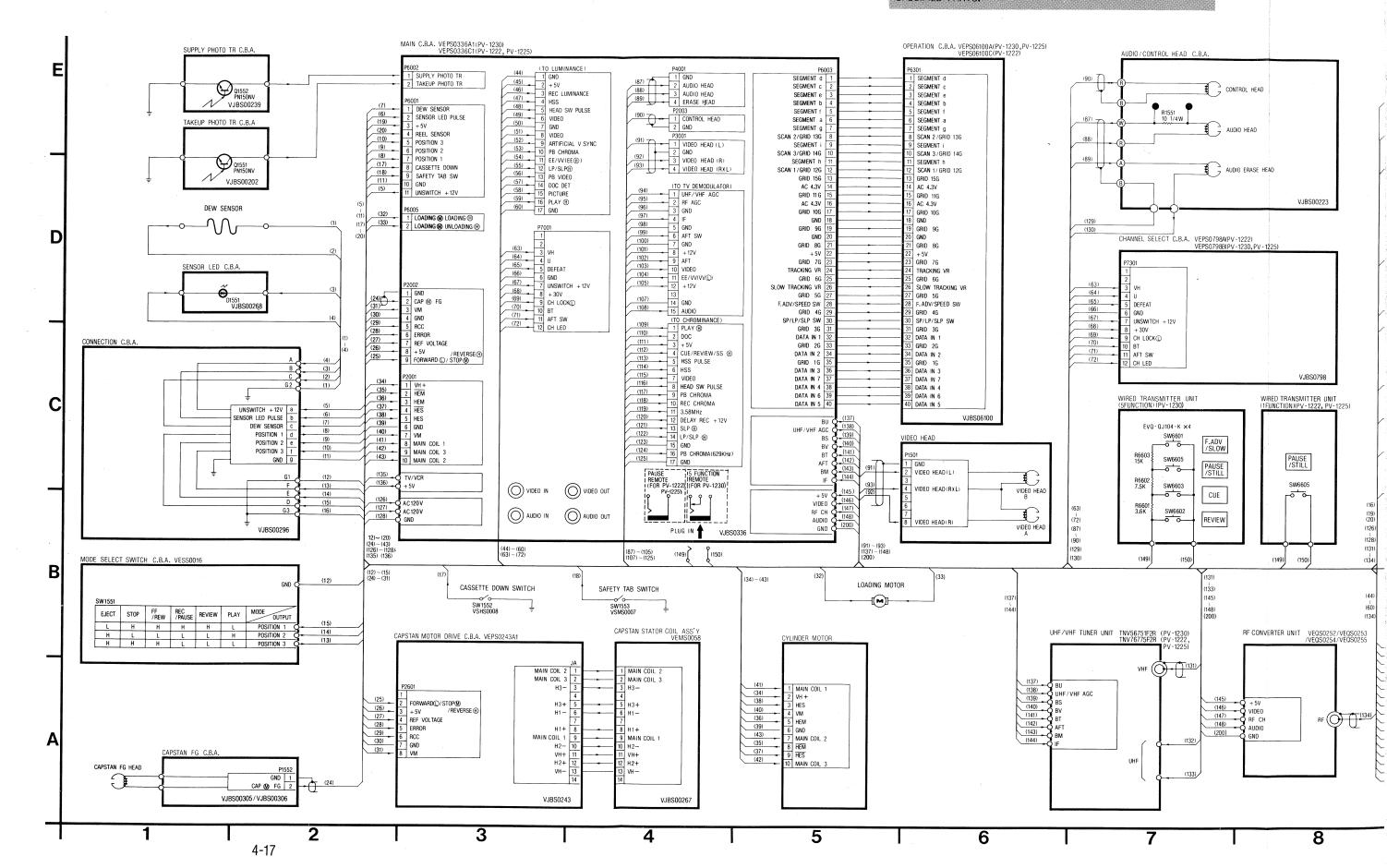
SENSOR LED C.B.A.

LINE FILTER C.B.A.

4-16

# INTERCONNECTION SCHEMATIC DIAGRAM

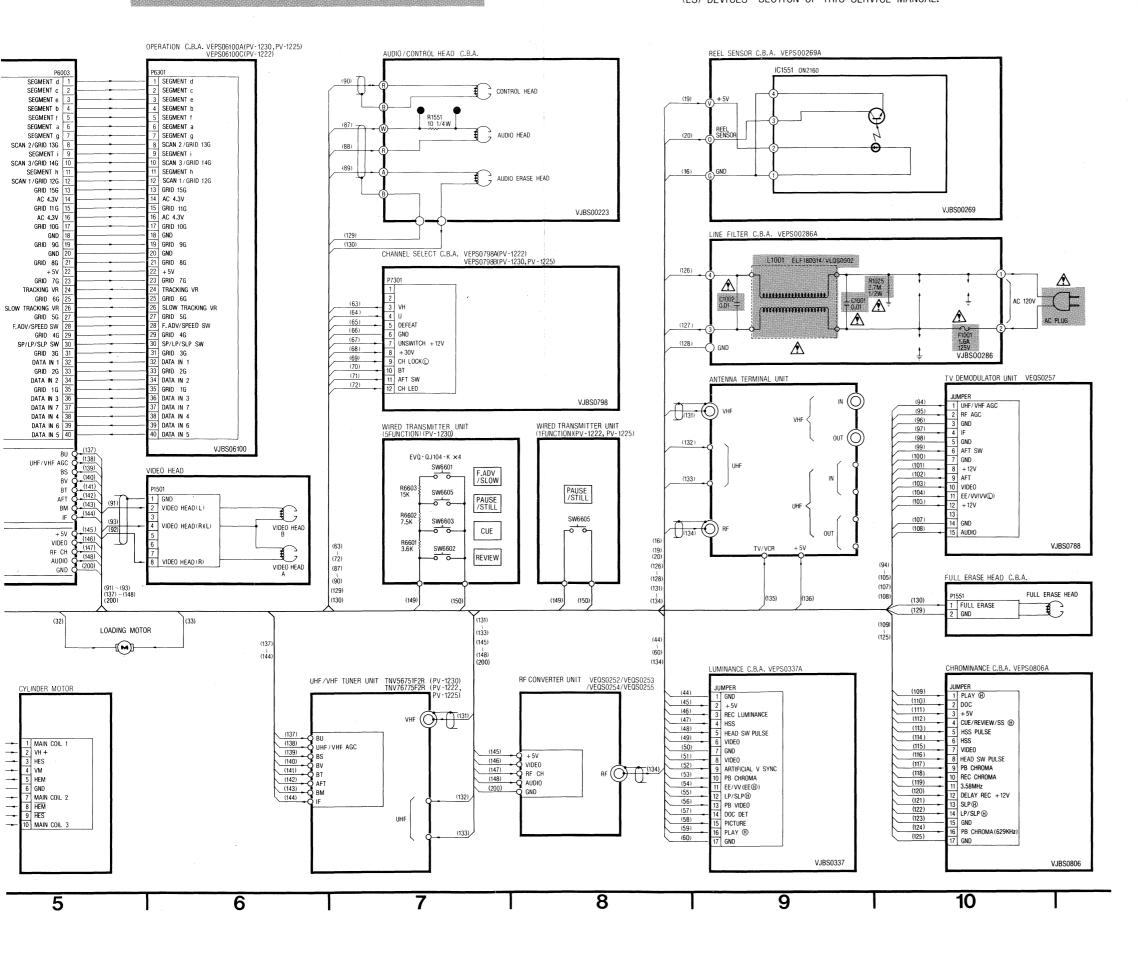
IMPORTANT SEFETY NOTICE:
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COMPONENTS IDENTIFIED BY THE SIGN AND HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.

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# Service Manu

Vol. 5

**Exploded Views** Replacement Parts List **Panasonic** Omnivision ?V-1230 PV-1222 PV-1225

Video Cassette Recorder

## **SPECIFICATIONS**

Power Source:

 $120V AC \pm 10\%, 60 Hz \pm 0.5\%$ 

Power Consumption:

Approx. 18 watts

Television System:

EIA Standard (525 lines, 60 fields)

NTSC color signal

Video Recording

System: 2 rotary heads, helical scanning system

Luminance: FM azimuth recording Color signal: Converted subcarrier phase

shift recording

Audio Track:

1 track

Tape Format:

Tape width 1/2" (12.7 mm), high density

tape

Tape Speed:

SP mode: 1-5/16 i.p.s. (33.35 mm/s) LP mode: 21/32 i.p.s. (16.67 mm/s)

SLP mode: 7/16 i.p.s. (11.12 mm/s)

Record/Playback Time: 8 HRS. with 160 min. type tape used in

SLP mode

FF/REW Time:

Less than 6 min. with 120 min. type tape

Heads:

Video: 2 rotary heads

Audio/Control: 1 stationary head

Erase: 1 full track erase

Input Level:

1 audio track erase

Video: VIDEO IN Jack (RCA type)  $1.0 \,\mathrm{Vp}$ -p,  $75 \,\Omega$  unbalanced Audio: AUDIO IN Jack (RCA type)

TV Tuners: VHF Input: VHF Ch2-Ch13,

 $75\Omega$  unbalanced

UHF Input: Ch14-Ch83,

 $-20\,\mathrm{dB}$ ,  $50\,\mathrm{k}\Omega$  unbalanced

 $300\Omega$  balanced

Output Level:

Video: VIDEO OUT Jack (RCA type)  $1.0\,\mathrm{Vp}$ -p,  $75\Omega$  unbalanced

Audio: AUDIO OUT Jack (RCA type)

 $-6 \, \mathrm{dB}$ ,  $600 \Omega$  unbalanced

RF Modulated: Ch3/Ch4 switchable,

72 dBμ, (Open Voltage)

 $75\Omega$  unbalanced

Video Horizontal

Resolution: Color: more than 230 lines

B/W: more than 230 lines



**Audio Frequency** 

Response: SP mode: 100 Hz~8kHz

(10dB down)

LP mode: 100 Hz ~ 6 kHz SLP mode:  $150 \,\mathrm{Hz} \sim 5 \,\mathrm{kHz}$ 

Signal-to-Noise Ratio: Video: SP mode: better than 41 dB LP mode: better than 41dB SLP mode: better than 41 dB (Rohde & Schwarz noise meter)

Audio: SP mode: better than 42 dB LP mode: better than 40dB SLP mode: better than 40 dB

Operation

Temperature: 41°F-104°F (5°C-40°C)

Operating Humidity:

10%-75%

Weight:

13.0 lbs. (5.9 kg)

Dimensions:

16-15/16 "(W)  $\times 11-5/8$  "(D)  $\times 4-1/4$  "(H)

 $(430 \,\mathrm{mm} \times 295 \,\mathrm{mm} \times 108 \,\mathrm{mm})$ 

Accessories Supplied:

• Remote control unit

 VHF connecting cable •  $300\Omega$ — $75\Omega$  transformer

Twin-lead cable

Available Tapes:

1/2" VHS video cassette tapes

NV-T160 Approx. 1073ft. (327m), 160,

320, or 480 min

NV-T120 Approx. 810 ft. (247 m), 120, 240,

or 360 min

NV-T60 Approx. 417 ft. (127 m), 60, 120,

or 180 min.

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

# **Panasonic**

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# ■ IMPORTANT SAFETY NOTICE

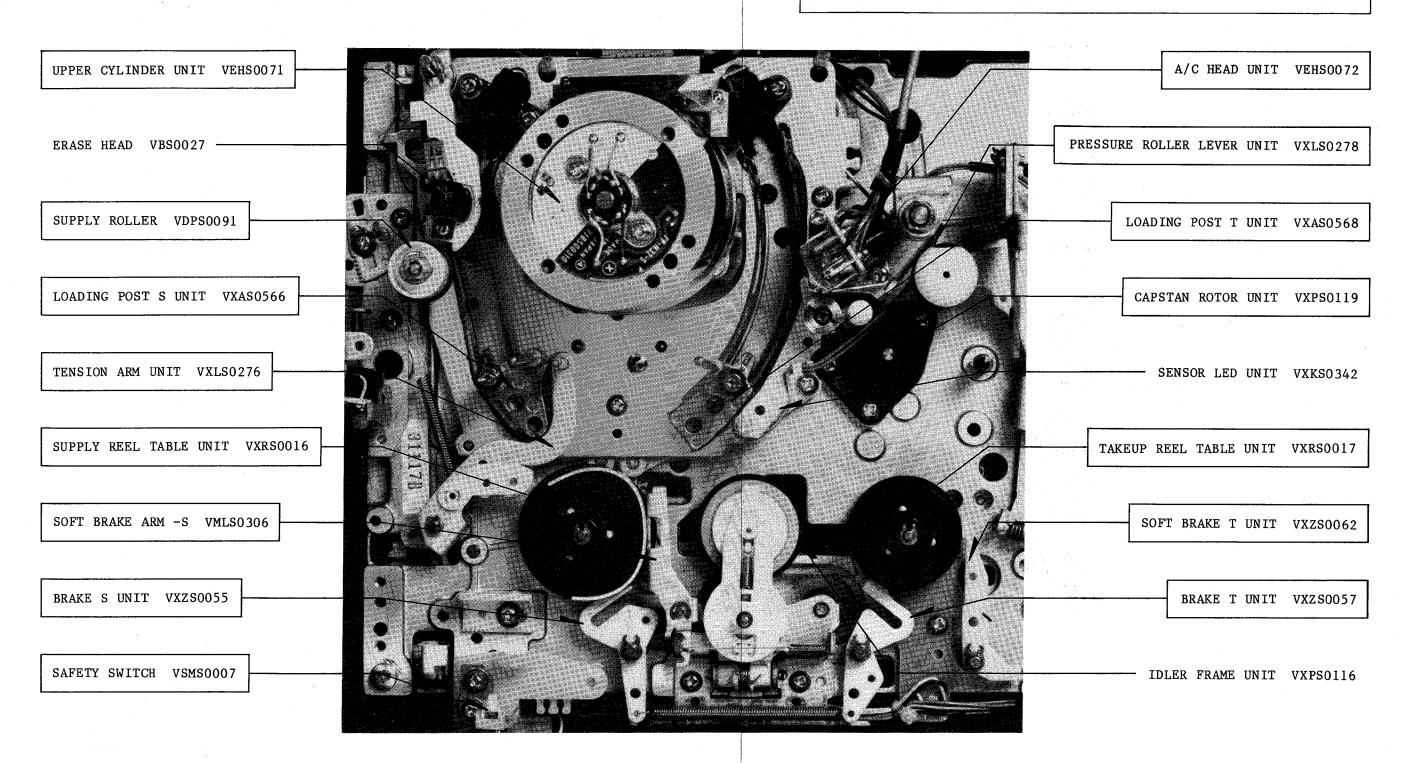
There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

# **INNER PARTS LOCATION**

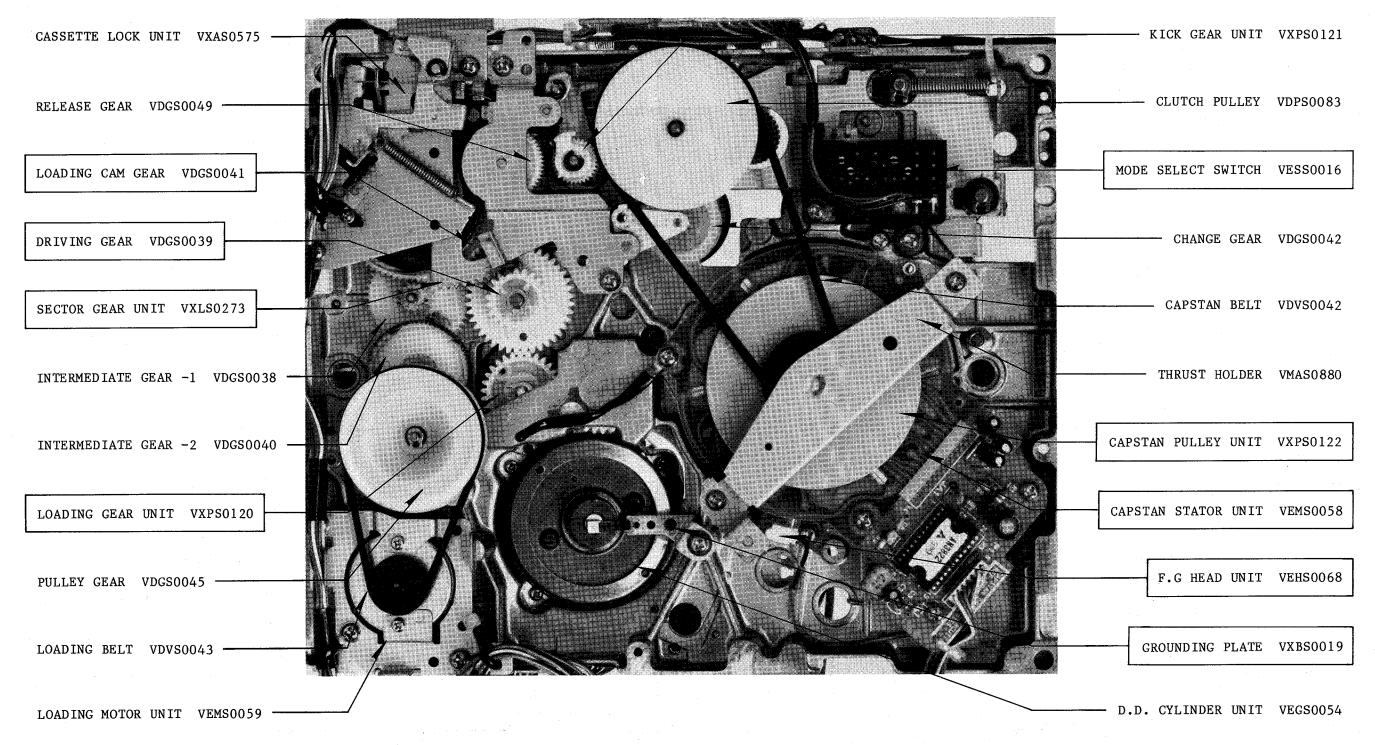
**TOP VIEW** 

# Note:

When the mechanical parts surrounded by rectangle are removed or replaced, be sure to perform necessary adjustment or confirmation procedures according to the mechanical adjustment procedures section.



# **BOTTOM VIEW**



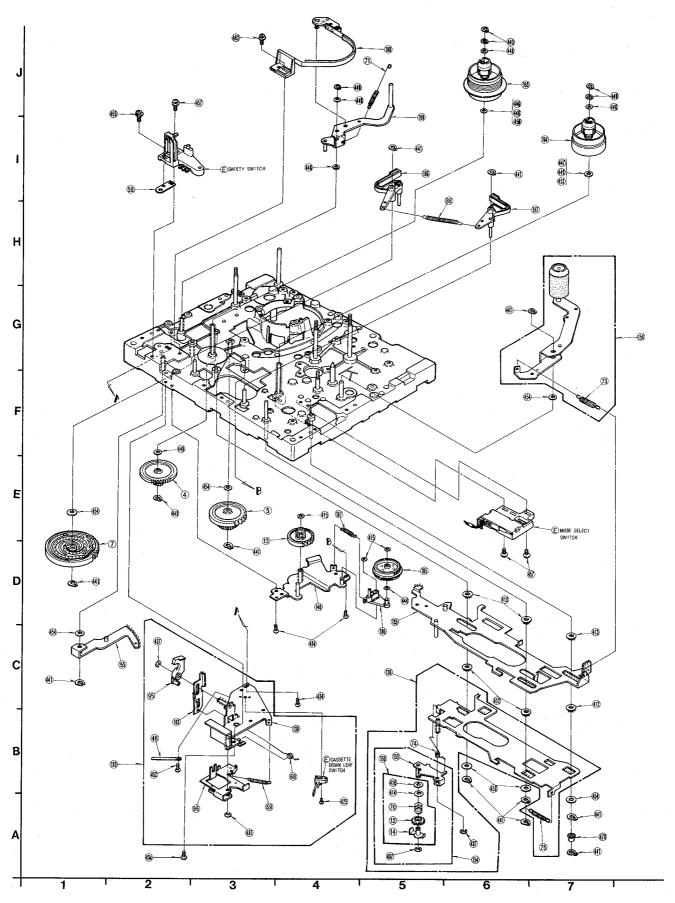
# LUBRICATION POINTS

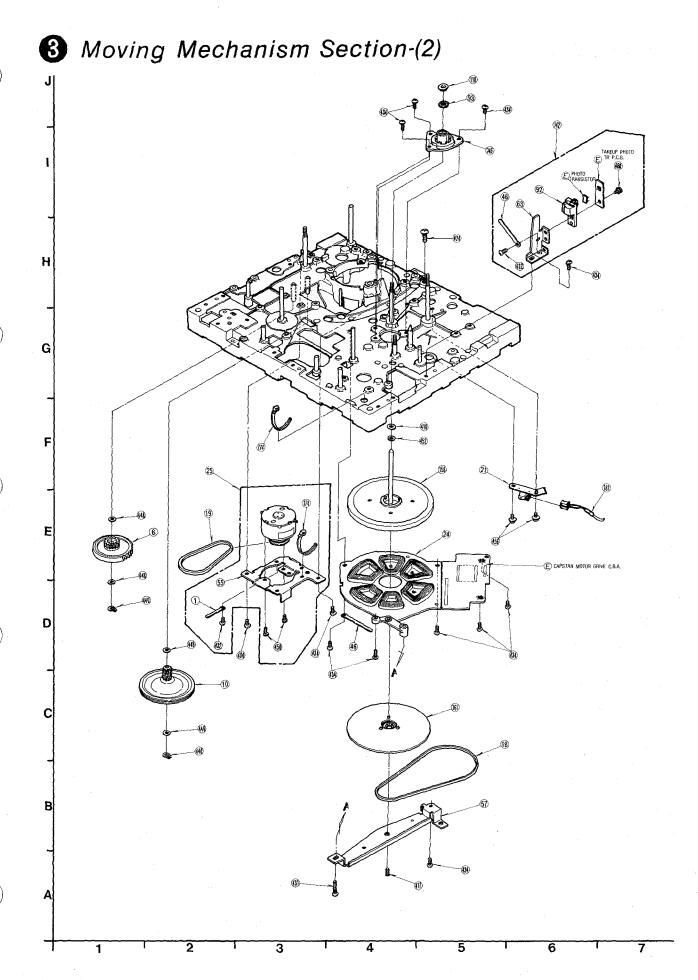
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Marks	Kind of Lubricant	Availability	Part Number
XXX	Molytone Grease	Available From Factory	M0R265
000	Spindle Oil	Purchase From Local Supplier	
ΔΔΔ	Gummed Adhesive	Purchase From Local Supplier	

# **EXPLODED VIEWS** 1 Transport Section

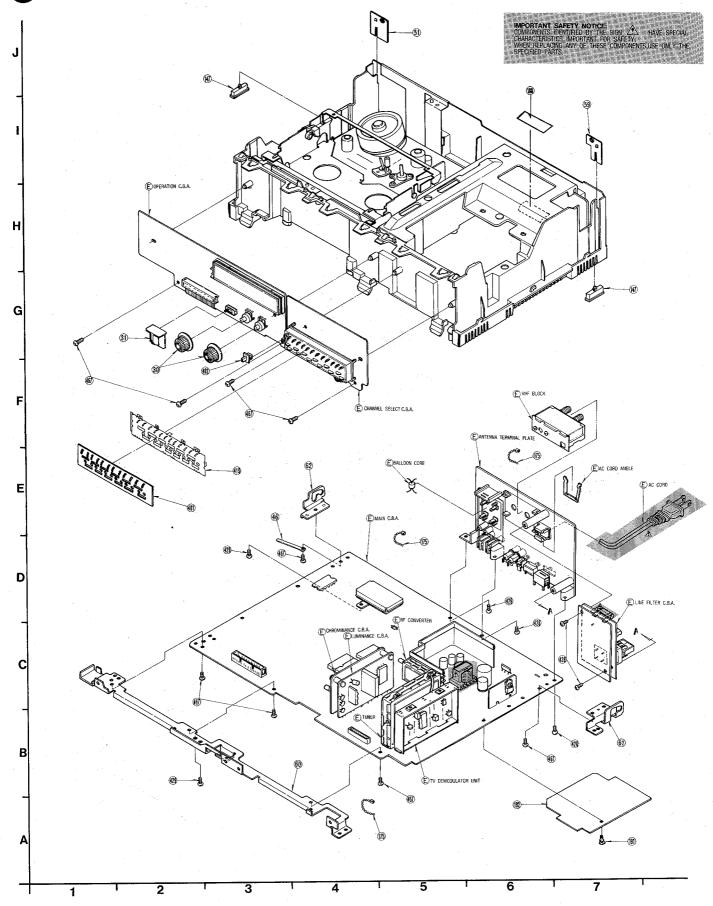
# 2 Moving Mechanism Section-(1)



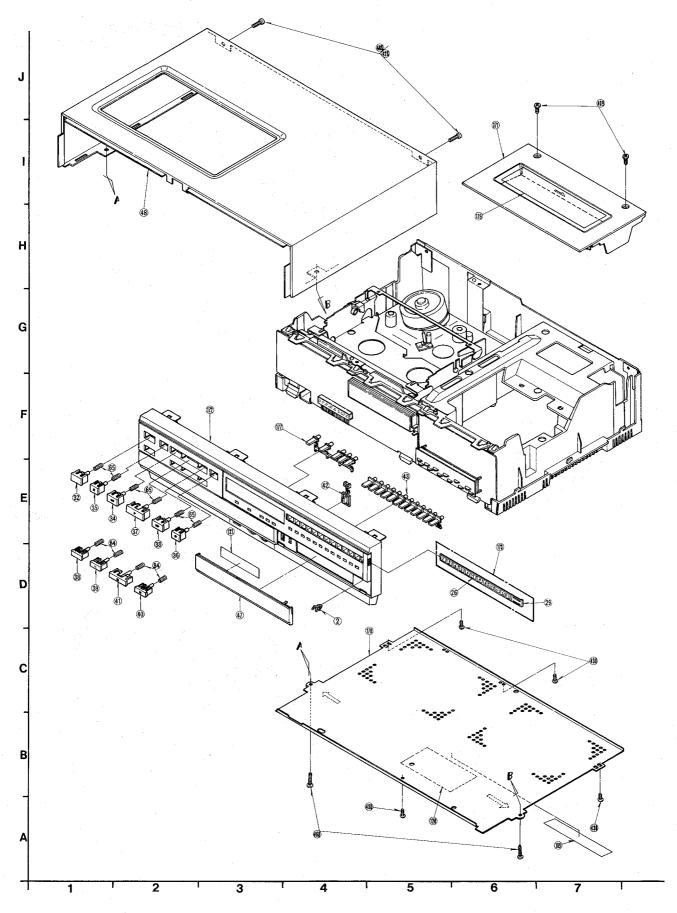


# 4 Cassette Up Mechanism Section

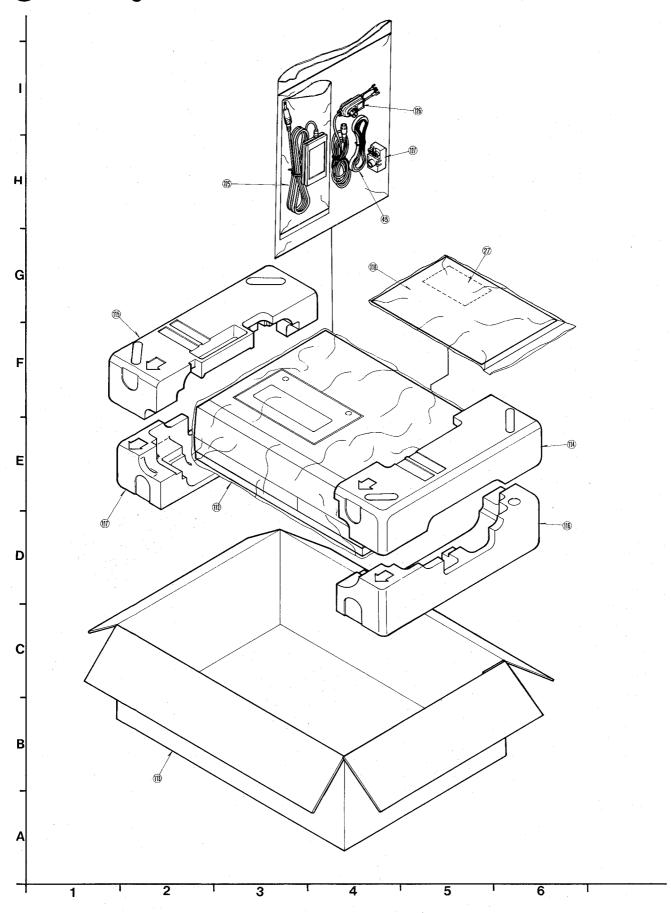
# 6 Chassis Frame & Tuner Parts Section



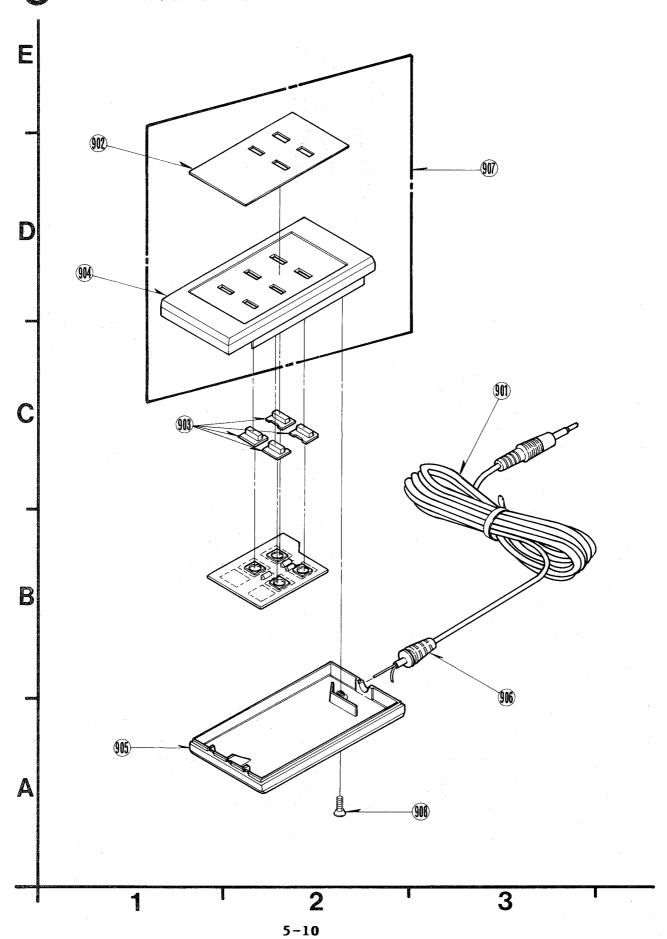
# 6 Casing Parts Section



# 7 Packing Parts & Accessories Section



# Wired Transmitter Unit Section (PV-1230)



MECHANICAL REPLACEMENT PARTS LIST
Model No. PV-1230/PV-1222/PV-1225

Note: Be sure to make your orders of replacement parts according to this list.
(A)=PV-1230, (B)=PV-1222, (C)=PV-1225

ltem Io.	Drawing No.	Description	Pcs/ Set	Part No.	Remar
1	3	CLAMPER	1	SCF-2011S	
2	6	DOOR CLAMPER	1	VGQS0374	
3	1	ERASE HEAD	1	VBS0027	
				OR VBS0030	
4	2	INTERMEDIATE GEAR -1	1	VDGS0038	
5	2	DRIVING GEAR	1	VDGS0039	
6	3	INTERMEDIATE GEAR -2	1	VDGS0040	
7	2	LOADING CAM GEAR	1	VDGS0041	
8	1	IDLER GEAR	1	VDGS0043	
9	1	INTERMEDIATE GEAR -A	1	VDGS0044	
10	3	PULLEY GEAR	1	VDGS0045	
11	1	INTERMEDIATE GEAR -B	1	VDGS0046	-
12	2	KICK GEAR -1	1	VDGS0048	
13	2	RELEASE GEAR	I	VDGS0049	
14	2	KICK GEAR -2	1	VDGS0050	-
15	4	CASSETTE HOLDER ROLLER	2	VDPS0076	
16	1	CLUTCH PULLEY	1	VDPS0083	-
17	1	SUPPLY ROLLER	1	VDPS0091	
18	3	CAPSTAN BELT	1	VDVS0042	
19	3	LOADING BELT	1	VDVS0043	
20	1	D.D CYLINDER UNIT	1	VEGS0054	
21	3	F.G HEAD UNIT	1	VEHS0068	
				OR VEHSOO69	
22	1	UPPER CYLINDER UNIT	1	VEHS0071	
23	1	A/C HEAD UNIT	1	VEHS0072	
24	3	CAPSTAN STATOR UNIT	1	VEMS0058	
25	3	LOADING MOTOR UNIT	1	VEMS0059	
					-
26	6	VHF CHANNEL FILM	1	VGKS0545	(A)
27	7	UHF CHANNEL FILM	1	VGKS0683 VGKS0549	
27	7	THE ACCIV	1	VEKS1694	(B),(C)
28	1	LUG ASS'Y FILM HOLDER	1	VGQS0258	-
30	5	TRACKING KNOB	2	VGTS0127	-
30	13	TRACKING KNOB		10130127	
31	5	SPEED SELECT SWITCH KNOB	1	VGTS0134	
32	6	POWER BUTTON	1	VGUS0644	(A)
32	6		1	VGUS0702	(B)
32	6		1	VGUS0773	(c)
33	6	OPERATION BUTTON -F.F	1	VGUS0645	(A)
33	6		1	VGUS0704	(B)
33	6		1	VGUS0777	(c)
24	6	OPERATION BUTTON -REWIND	1	VGUS0646	(A)
34	6		1	VGUS0703	(B)
34	1.0		1	VGUS0775	(c)
34 34	6			VGUS0647	(A)
34 34 35	6	OPERATION BUTTON -EJECT	1	H-	/->
34 34 35 35	6	OPERATION BUTTON -EJECT	1	VGUS0705	(B)
34 34 35	6	OPERATION BUTTON -EJECT		H-	(B)
34 34 35 35 35	6 6		1	VGUS0705	
34 34 35 35	6	OPERATION BUTTON -EJECT OPERATION BUTTON -RECORD	1	VGUS0705 VGUS0774	(c)
34 34 35 35 35 36	6 6		1 1	VGUS0705 VGUS0774 VGUS0648	(C)
34 34 35 35 35 36 36	6 6 6 6		1 1 1 1 1	VGUS0705 VGUS0774 VGUS0648 VGUS0706	(C) (A) (B)
34 34 35 35 35 36 36 36	6 6 6 6 6	OPERATION BUTTON -RECORD	1 1 1 1 1	VGUS0705 VGUS0774 VGUS0648 VGUS0706 VGUS0929	(C) (A) (B) (C)
34 34 35 35 35 36 36 36 37	6 6 6 6 6 6	OPERATION BUTTON -RECORD	1 1 1 1 1 1	VGUS0705 VGUS0774 VGUS0648 VGUS0706 VGUS0929 VGUS0649	(C) (A) (B) (C) (A)
34 35 35 35 36 36 36 37	6 6 6 6 6 6 6	OPERATION BUTTON -RECORD	1 1 1 1 1 1	VGUS0705 VGUS0774 VGUS0648 VGUS0706 VGUS0929 VGUS0649 VGUS0707	(C) (A) (B) (A) (B)
34 34 35 35 35 36 36 36 37 37	6 6 6 6 6 6 6 6 6	OPERATION BUTTON -RECORD OPERATION BUTTON -PLAY	1 1 1 1 1 1 1	VGUS0705 VGUS0774 VGUS0648 VGUS0706 VGUS0929 VGUS0649 VGUS0707 VGUS0927	(C) (A) (B) (C) (A) (B)
34 34 35 35 35 36 36 36 37 37 37	6 6 6 6 6 6 6 6 6	OPERATION BUTTON -RECORD OPERATION BUTTON -PLAY	1 1 1 1 1 1 1 1	VGUS0705 VGUS0774 VGUS0648 VGUS0706 VGUS0929 VGUS0649 VGUS0707 VGUS0927 VGUS0650	(C) (A) (B) (C) (A) (B) (C) (A)

Item	Drawina		Pcs/		
No.	Drawing No.	Description	Set	Part No.	Remark
39	6		1	VGUS0780	(c)
40	6	OPERATION BUTTON -SLOW	1	VGUS0652	(A)
	6		1	VGUS0710	(B)
	6		1	VGUS0782	(c)
				70000702	(3)
41	6	OPERATION BUTTON -STOP	1	VGUS0653	(A)
	6	OLDANIZON DETIGN DEGI	1	VGUS0711	(B)
			1	VGUS0931	(c)
	6	O T P BUTTON	1	VGUS0654	(0)
_	6	O.T.R BUTTON			
	6	CHANNEL SELECT BUTTON	1	VGUS0826	
44					
45	7	TWIN LEAD CONNECTOR	1	VJA0102	
					-
	2,3,5	CLAMPER	. 4	VJR3	
47	6	TUNING DOOR	1	VKFS0241	.(A)
47	6		1	VKFS0254	(B)
47	6		1	VKFS0292	(c)
48	6	TOP COVER	1	VKMS0065	(A)
48	6		1	VKMS0083	(B),(C)
49	1	SHAFT HOLDER PLATE	2	VMAS0545	
	1	CASSETTE OPENER COVER	1	VMAS0694	
51	5	TOP COVER ANGLE -L	1	VMAS0756	
	4	CASSETTE COMPARTMENT SUPPORT	1	VMAS0850	
- 32	*	ANGLE -REAR		***************************************	
53	1	CASSETTE OPENER ANGLE	1	VMAS0873	
	4	TENSION ANGLE	1	VMAS0876	<u> </u>
55	3	LOADING MOTOR BRACKET	1	VMAS0877	
56	4	TRANSISTOR ANGLE	1	VMAS0878	
57	3	THRUST HOLDER	1	VMAS0880	
58	2	GROUNDING PLATE	1	VMAS0883	
59	5	TOP COVER ANGLE -R	1	VMAS0932	
60	5	MAIN C.B.A ANGLE -FRONT	1	VMAS0934	
61	5	MAIN C.B.A ANGLE -RIGHT	1	VMAS0935	
62	5	MAIN C.B.A ANGLE -LEFT	1	VMAS0936	
63	3	TRANSISTOR BRACKET -R	1	VMAS1003	
	1	SUPPLY INERTIA SPRING	1	VMBS0071	
65	6	OPERATION BUTTON SPRING	6	VMBS0256	
65	0	OFERRION BUTTON STRING		VALDOZJO	
		ALCOHOMIN HOLD THE GREAT		VMBS0259	
	4	CASSETTE HOLDING SPRING	2		
	1	POST SPRING -P,4	1	VMBS0288	
68	2	STOPPER SPRING	1	VMBS0328	
69	2	EJECT SPRING	1	VMBS0329	
70	2	KICK SPRING	1	VMBS0330	
		-			
71	2	TENSION SPRING	1	VMBS0331	
72	4	SOFT BRAKE SPRING	1	VMBS0332	
73	2	PRESSURE ROLLER SPRING	1	VMBS0334	
74	2	KICK LEVER SPRING	1	VMBS0336	
75	2	SUB LEVER SPRING	1	VMBS0337	
76	1	CHANGE LEVER SPRING	1	VMBS0338	
77	1	IDLER ARM SPRING	1	VMBS0339	1
	1	ADJUST SPRING	1	VMBS0340	
79	1	SOFT BRAKE SPRING -S	1	VMBS0341	
	1	<del></del>	1	VMBS0341	
υU		A/C HEAD SPRING		-11000 342	
01	,	HOLDED CDDYNG Y	+	IMPEGA12	
81	4	HOLDER SPRING -L	1	VMBS0343	
	4	HOLDER SPRING -R	1	VMBS0344	
83	1	IDLER SPRING	1	VMBS0355	
84	6	OPERATION BUTTON SPRING	4	VMBS0410	-
85	I	ERASE HEAD LEVER SPRING	1	VMBS0373	
86	2	BRAKE ARM SPRING	1	VMBS0409	
87	4	DISCRIMINATION LEVER SPRING	1	VMBS0395	
	1	ADJUST SPRING	1	VMB0404	
89	I	LOADING SPRING	2	VMB0669	
			<del>-</del>	<del></del>	

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
91	1	POST STOPPER	2	VMDS0199	
92	3,4	TRANSISTOR HOLDER	2	VMD0091	
93	3	OIL POOL	1	VMD0104	
94			-	1110104	<del> </del>
95	2	LOCK LEVER	1	VMLS0299	<u> </u>
	-	-	+	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-
96	2	EJECT LEVER	1	VMLS0300	
97	1	IDLER ARM -A	1	VMLS0303	
98	1	CHANGE LEVER -B	1	VMLS0305	
99	1	SOFT BRAKE ARM -S	1	VMLS0306	
100	4	SUB ARM -L	1	VMLS0311	
100	4	oob and B	+-	VIII.DU STI	
101	4	SUB ARM -R	1	VMLS0312	
102	1 .	ERASE HEAD LEVER	1	VMLS0350	
103	2	LOCK SLIDE LEVER	1	VMMS0010	
104	1	LEVER SHAFT	1	VMSS0381	-
105	1	COLLAR	1	VMXS0035	<del> </del>
103	1	COLLAR	1	VPLABOUS5	<del> </del>
106		noon our n	+	rnara 1 a a	1
106	1	POST CAP -P.4	1	VMXS0129	-
107	1	LIMITER SUPPORTER	1	VMXS0321	
108	1	SLEEVE	1	VMXS0370	-
109	4	LOCK COLLAR	1	VMX0247	
110	3	OIL SEAL	1	VMX0251	
			-		
111	1	INERTIA ROLLER UPPER LIMITER	1	VNWS0002	
112	7	POLYETHYLENE BAG	1	VPFS0040	
113	7	PACKING CASE	1	VPGS0873	(A)
113	7		1	VPGS0876	(B)
113	7		1	VPGS0877	(c) .
114	7	RIGHT CUSHION -TOP	1	VPNS0149	
115	7	LEFT CUSHION -TOP	1	VPNS0150	
116	7	RIGHT CUSHION -BOTTOM	1	VPNS0151	
117	7	LEFT CUSHION -BOTTOM	1	VPNS0152	
118	7	FAN BAG	1	VQFS0569	(A)
118	7		1	VQFS0572	(B)
118	7		1	VQFS0573	(C)
119	6	STICKER	1	VQLS0928	(A)
119	6		1	VQLS0988	(B),(C)
120	6	BOTTOM CAUTION LABEL	1	VQLS0698	
121	6	TUNING CAUTION LABEL	1	VQLS0871	(A)
121	6		1	VQLS0892	(B),(C)
122	1	SHIELD CASE	1	VSCS0502	
123					
124					
	7	WIRED TRANSMITTER UNIT	1	VSQS0300	(A)
	7		1	VSQS0112	(B),(C)
•	:			-	
126	7	VHF CONNECTING CABLE	1	VSQS0215	
127	7	VHF ANTENNA ADAPTOR	1	VSQS0198	
				OR VSQ0057	
128	1	ROLLER POST UNIT	2	VXAS0344	
				OR VXASO562	
129				3302	
	1	LOADING BASE 1 UNIT	1	VXAS0564	
			+		
131	1	SHAFT HOLDER BLOCK S UNIT	1	VXAS0565	
	1	LOADING POST S UNIT	1	VXAS0566	
	1	SHAFT HOLDER BLOCK T UNIT	1	VXAS0567	
	1	LOADING POST T UNIT	1		
	2			VXAS0568	
135		MAIN LEVER UNIT	1	VXAS0569	
100		dyn y wyng yr			
-	2	SUB LEVER UNIT	1	VXAS0572	
	1	CASSETTE OPENER ANGLE UNIT	1	VXAS0573	
	2	LOCK BASE UNIT	1	VXAS0574	
	2	CASSETTE LOCK UNIT	1	VXAS0575	
140	2	KICK BASE UNIT	1	VXAS0578	
		The second secon			

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark.
141	4	SUPPLY PHOTO TR BRACKET UNIT -S	1	VXAS0582	
142	3	SUPPLY PHOTO TR BRACKET UNIT -T	1	VXASO583	
143	4	CASSETTE HOLDER 1 UNIT	1	VXAS0589	
144	1	GROUNDING PLATE	1	VXAS0592 VXBS0019	
172	*	GROUNDING TERMS	*	YADDOOLS	<u> </u>
146	3	HOUSING	1	VXDS0012	
147	5	CUSHION	2	VXGS0006	
148	1	F.F SLIDE LEVER UNIT	1	VXKS0339	
149	1	LOADING ARM R UNIT	. 1	VXLS0200	
150	1	LOADING ARM L UNIT	1	VXLS0201	
151	1	CHANGE LEVER -A	1	VXLS0267	
152	1	IDLER ARM -B	1	VXLS0268	
153	2	ARM LEVER	1	VXLS0271	
154	2	ARM LEVER UNIT	1	VXLS0272	
155	2	SECTOR GEAR UNIT	1	VXLS0273	
150			<del> </del>		
156	2	PRESSURE ROLLER LEVER UNIT	. 1	VXLS0278 VXPS0116	
157 158	3	CAPSTAN ROTOR UNIT	1	VXPS0116 VXPS0119	
159	1	LOADING GEAR UNIT	2	VXPS0119	
160	2	KICK GEAR UNIT	1	VXPS0120	
100		ALGA GERM VALL	- <u>-</u>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
161	3	CAPSTAN PULLEY UNIT	1	VXPS0122	
162	1	CLUTCH GEAR UNIT	1	VXPS0124	
				OR VXPSO134	
163	2	SUPPLY REEL TABLE UNIT	1	VXRS0016	
164	2	TAKEUP REEL TABLE UNIT	1	VXRS0017	
165	4	DAMPER	1	VXZS0053	
		· ·			
166	2	BRAKE S UNIT	1	VXZS0055	
167	2	BRAKE T UNIT	1	VXZS0057	
168	2	TENSION ARM UNIT	1	VXLS0276	
169	4	SOFT BRAKE T UNIT	1	VXZS0062	
170	6	BOTTOM PANEL UNIT	1	VYFS0050	
171	6	CASSETTE COVER UNIT	1	VYPS1544	(A)
171	6	CASSELLE COVER UNII	1	VYPS1544	(B),(C)
172	6	FRONT PANEL 1 UNIT	1	VYPS1850	(A)
172	6		1	VYPS1937	(B)
172	6		1	VYPS1934	(c)
173	6	FILM HOLDER UNIT	1	VYQS0023	
174	1,3,4	CLAMPER	6	VZFS0006	
175	5	FASTENER	3	WZBV1	
176	1	RETAINING RING C-TYPE 4	4	XUEV4FP	
177	6	TIMER OPERATION BUTTON	1	VGUS0643	
178			- '		
179	1	FASTENER	1	TYB-23M	
180	2	TENSION BAND UNIT	1	VXZS0059	
101		CONVENIENCE AGAIN	<b>.</b>	**********	
181	3	CONNECTOR ASS'Y	1	VEKS1426	
182	1	CONNECTOR ASS'Y	1	VEKS1427 VEKS1428	
184	1	CONNECTOR ASS'Y	1	VEKS1429	
	2	CHANGE GEAR	1	VDGS0042	
		- CALLETON CONTRACTOR	<u> </u>	12020042	
185	2				t
185		KICK LEVER 1 UNIT	1	VXLS0275	
	2	KICK LEVER 1 UNIT SELECT GEAR LEVER SPRING	<del> </del>	VXLS0275 VMBS0333	
185		KICK LEVER 1 UNIT SELECT GEAR LEVER SPRING FUSE CAUTION LABEL	1 1 1	VMBS0333	
185 186 187	2 2	SELECT GEAR LEVER SPRING	1		
185 186 187 188	2 2 5	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL	1	VMBS0333 VQLS0768	
185 186 187 188 189	2 2 5	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL	1	VMBS0333 VQLS0768	
185 186 187 188 189	2 2 5	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL	1	VMBS0333 VQLS0768	
185 186 187 188 189	2 2 5 6	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL TOP COVER CAUTION LABEL	1 1	VMBS0333 VQLS0768 VQLS0995	
185 186 187 188 189 190	2 2 5 6 6 5	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL TOP COVER CAUTION LABEL CLIP	1 1 1	VMBS0333 VQLS0768 VQLS0995 VHN0011-T	
185 186 187 188 189 190	2 2 5 6 6 5	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL TOP COVER CAUTION LABEL CLIP	1 1 1	VMBS0333 VQLS0768 VQLS0995 VHN0011-T	
185 186 187 188 189 190	2 2 5 6 6 5	SELECT GEAR LEVER SPRING FUSE CAUTION LABEL TOP COVER CAUTION LABEL CLIP	1 1 1	VMBS0333 VQLS0768 VQLS0995 VHN0011-T	

		I	Τ	··	T				Pag /		T
Item   No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark	Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
401	5	TUNING V.R DECORATION	1	VGNS0783		458	3	SCREW WITH WASHER 2.6X33	2	XYN26+C33	
	5	SLIDE SWITCH KNOB -B	1	VGTS0118		459	1	SCREW WITH WASHER 3X4	2	XYN3+C4	
403	6	SCREW	2	VHDS0011		460	3,4	SCREW WITH WASHER 3X8	2	XYN3+E8S	
404	1	SCREW	3	VHDS0016							
405	1	LOCK SCREW	2	VHDS0024		461	1	SCREW WITH WASHER 3X16	. 4	XYN3+F16	
				OR VHDS0052		462	2,4	SCREW WITH WASHER 3X8	2	XYN3+F8	
						463	1	SCREW WITH WASHER 3X8	1	XYNV3+K8	
406	1	SCREW	1	VHDS0057		464	1	ADJUST SCREW	1	VHDS0041	
407	1	SCREW WITH WASHER	2	VHDS0032		465	1	SCREW 3X10	1	XSN3D10F	
408	1	SCREW	1	VHDS0045							
409	6	CASSETTE COVER SCREW	2	VHD0055		466	4	RETAINING RING E-TYPE 5	1	XUC5FP	
410	1	ADJUST NUT -3	1	VHNS0019		467	5	TAPPING SCREW 3X8	9	XTV3+8	
				OR VHNSO023		468	6	TAPPING SCREW 3X25	2	XTV3+25AK	
						469	2	SCREW WITH WASHER 3X8	1	XYE3+FF8	
411	1	IDLER ANGLE	1	VMAS0872		470	2	SUB LEVER CUSHION	1	VMDS0243	
412	2	SLIDE WASHER	3	VMXS0050							
	2	SLIDE WASHER F	3	VMXS0109		471	1	TAPPING SCREW 2.6X6	1	XTV26+6F	
	2	WASHER	1	VMXS0335							
415		CUT WASHER	8	VMXS0336 *							
	· · · · · · · · · · · · · · · · · · ·				T						
416	2	CUT WASHER	1	VMXS0342 *							
	3	THRUST SCREW	1	VMX0211							
418	3	CAPSTAN THRUST WASHER	1	VMX0265							
419	5	TUNING V.R GROUNDING PLATE	1	VSCS0392		901	8	REMOTE CONTROL CABLE	1	VECS0101	(A)
420	1	M3 NUT	1	XNG3E		902	8	REMOTE CONTROL CASE DECORATION	1	VGKS0626	(A)
720			†- <u>-</u> -			903	8	REMOTE CONTROL BUTTON	4	VGUS0948	(A)
421	1	M3 NUT	1	XNG3EZU		904	8	REMOTE CONTROL CASE -TOP	1	VKMS0066	(A)
422	1	WASHER 5	1	XNG5E		905	8	REMOTE CONTROL CASE -BOTTOM	1	VKMS0073	(A)
423	6	BIND SCREW 4X12	2	XSB4+12KS		1 703					
	3	TAPPING SCREW 4X18	1	XTN4+18G		906	8	BUSHING	1	VVRS0017	(A)
424		SCREW WITH WASHER 2X8	1	XYE2+CF8	<del> </del>	907	8	REMOTE CONTROL CASE TOP UNIT	1	VYBS0118	(A)
425	2	SCREW WITH WASHER ZAO	+	XIB2+GFG		908	8	TAPPING SCREW 2.6X10	1	XTS26+10BFZ	(A)
		TINDING GODDY O CHE	٠,	XTV26+6FS	-	900		TATTING SCREW 2.0210	1	K1020 · 10 DI S	(11)
426	4	TAPPING SCREW 2.6X6	1 .	<del> </del>			-		-		
427	4	TAPPING SCREW 3X8	1 ,	XTN3+8F	<del> </del>						
428	5	TAPPING SCREW 3X10	4	XTV3+10G							
429	5	TAPPING SCREW 3X12	3	XTV3+12AR					-		<del> </del>
430	6	TAPPING SCREW 3X12	4	XTV3+12AK		-			-		+
					ļ				-	<del> </del>	<del></del>
431	3	TAPPING SCREW 3X15	1	XTV3+15F		l		SERVICING FIXTURES & TOOLS	+		
432	1,2,3	TAPPING SCREW 3X6	6	XTV3+6F				VHS ALIGNMENT TAPE	-	VFMS0001H6	<del></del>
433	4	TAPPING SCREW 3X6	2	XTV3+6FS	<u> </u>			DIAL TORQUE GAUGE		VFK0133	-
434	1,2,3,4	TAPPING SCREW 3X8	31	XTV3+8F				PLASTIC CLAMPER		VFK0180	
435	4	TAPPING SCREW 4X30	2	XTB4+30G		-		ADAPTOR FOR VFK0133	+-	VFK0134	
							-	FINE ADJ. SCREWDRIVER		VFK0136	
436	1,4	RETAINING RING E-TYPE 1.5	3	XUC15FP		$\vdash \vdash$		(for 3mmø Long Shaft)	+		
437	1,2	RETAINING RING E-TYPE 2.5	5	XUC25FP		I			+		
438	4	RETAINING RING E-TYPE 3	6	XUC3FP	-			POST ADJ. SCREWDRIVER	+	VFK0137	
439		RETAINING RING E-TYPE 4	1	XUC4FP		l	<u> </u>	POST ADJ. PLATE	+	VFKS0010	-
440	2,3	RETAINING RING C-TYPE 3	8	XUEV3VW		l		REEL TABLE HEIGHT FIXTURE	+	VFKS0009	
								TENSION POST ADJ. PLATE	-	VFKS0002	1:
	1,2,4	RETAINING RING C-TYPE 4	13	XUEV4VW		l		H-POSITION ADJ. FIXTURE	-	VFKS0003	<del> </del>
442		POLY SLIDER WASHER 2	1	XWGV2D5G	-				-		
443		POLY SLIDER WASHER 3	1	XWGV3D12G		<u> </u>		V - HOLD ADJ. TOOL	+	VFKS0031	
444	1,2	POLY SLIDER WASHER 3	4	XWGV3D54G		I	1	CASSETTE HOLDER FIXTURE	+	VFKS0004	-
445	1	WASHER 5	1	XWG5J12		l		V-STOPPER ADJ. FIXTURE		VFKS0029	1
			1 .	ļ	1			RETAINING RING REMOVER	-	VFK0144	-
446	2	POLY SLIDER WASHER 3	1	XWXV3A54	(t=0.25)	l	-	(for 3mm¢)	-		
447		POLY SLIDER WASHER 3	1	XWXV3A8	(t=0.25)			RETAINING RING REMOVER	+	VFK0145	+
448	1,2,3	POLY SLIDER WASHER 3	. 11	XWXV3D54	(t=0.5)	l		(for 4mmφ)	-	-	
449	2	POLY SLIDER WASHER 3	1	XWXV3D8	(t=0.5)	L				-	
450	2	POLY SLIDER WASHER 3	1	XWXV3254	(t=0.13)		l	HEX. WRENCH (for 1.5mmp)		VFK 76	1
						l		HEAD CLEANING STICK	J	VFK27	1
451	2	POLY SLIDER WASHER 3	1	XWXV3Z8	(t=0.13)			MOLYTONE GREASE	_	MOR 265	
452	3	POLY SLIDER WASHER 3	1	XWXV35 D6		<b> </b>		LOCK SCREW WRENCH		VFKS0032	
453		POLY SLIDER WASHER 4	2	XWXV4D11							
	1,2,4	POLY SLIDER WASHER 4	10	XWXV4D9							
455	1	SCREW WITH WASHER 2.6X8	1	XYC26+CJ8							
433				1.2	1						
4,55		1							-		
456	3	SCREW WITH WASHER 3X8	2	XYC3+FF8							<u> </u>

<sup>\*</sup> This cut washer is not reuseable. If removed, reinstall a new one.

# ELECTRICAL REPLACEMENT PARTS LIST

Model No. PV-1230/PV-1222/PV-1225

Special Note:

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "Electrostatically Sensitive (ES) Devices" section of this service manual.

Sensitive (ES) Devices' section of this service manual.

Note:

1. Be sure to make your orders of replacement parts according to this list.

2. IMPORTANT SAFETY NOTICE

Components identified by the stign there is no special characteristics important for safety.

When replacing any of these components. Use only the specified parts.

3. Unless otherwise specified;
All resistors are in OHMS (Q, 1/4W, ±5% carbon, K=1,000Q, M=1,000KQ.
All capacitors are in MICROFARADS (UF), ±10% P=UUF.
All coils are in MICROFARES (UH), M=10°U. ±10%.

4. C.B.A. Circuit Board Assembly.

5. P.C.B. Print Circuit Board.

(A)=PV-1230, (B)=PV-1222, (C)=PV-1225

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		PRINTED CIRCUIT BOARD ASSEMBLY	562	
	VEPS0336A1	MAIN C.B.A	1	(A)
	VEPS0336C1		1	(B),(C)
	VEPS06100A	OPERATION C.B.A	1	(A),(C)
	VEPS06100C		1	(B)
	VEPS0798B	CHANNEL SELECT C.B.A	1	(A),(C)
	VEPS0798A		1	(B)
	VEPS0243A1	CAPSTAN MOTOR DRIVE C.B.A	1	
	VEPS00286A	LINE FILTER C.B.A	1	
	VEP500286A	LINE FILIER C.B.A	1 1	
	VEPS0337A	LUMINANCE C.B.A	1	
		OURONATIVINOS O N	-	
	VEPS0806A	CHROMINANCE C.B.A	1	
	VEQS0257	TV DEMODULATOR UNIT	1	
	· · · · · · · · · · · · · · · · · · ·	MAIN C.B.A		
		INTEGRATED CIRCUITS		
IC1001	TLP521-YG		1	
	OR ON3111			
IC2001	AN6359		1	
IC2002	OR AN6359N MN6168VIB	<u> </u>	1	
IC2002	AN6356N	· · · · · · · · · · · · · · · · · · ·	1	
IC2004	AN6387		1	
IC2005	M54802P		1	
IC2006	AN1358		1	
102000			1	
	OR HA17358			
T02001	OR UPC358C		-	
IC3001	AN6307		1	
IC3002	AN3312		1	
IC4001	UPC1514CA		1	
IG4002	TA7361P		1	
	OR UPC1513HA			
TC4002	OR UPC1519HA			
IC4003	AN90 C22		1	
IC6001 IC6003	MN15843VRA M54543L		1 I	
IC7001	AN5070		1	
			ļ	
-		TRANSISTORS	<del> </del>	-
01001	<b>↑</b> 28D1330		1	
Q1002	2SB976		1	
Q1003	2SB642		1	
Q1004	<u> </u>		1	
	⚠ OR 28€3310			
Q1006	2SD1273	<u> </u>	1	

				Pcs	
Ref. No.		Part No.	Part Name & Description	/ Set	Remarks
Q1007		2SD637		1	
Q1009		2SD636		1	
Q1010-1012		2SB642		3	
Q1013		2SD638(Q,R)		1	
Q2001		2SA937M(R)		1	
<b>\</b>		OR			
		2SB641(Q,R,S)			
Q2002,2003		2SC2021M(R)		2	
Q2002,2003		OR .			
		2SD636(Q,R,S)			
Q2004	-	2SA937M(R)		1	
		OR.			
	_	2SB641(Q,R,S)			
Q2005		2SD1266(P,Q,R)		1	
		OR			
		2SD856(P,Q,R)			
Q3001-3003		2SD636(Q,R,S)		3	
Q3004		2SB641(Q,R,S)		1	
Q3005	Н	2SD636(Q,R,S)		1	
	Н	2SB641(Q,R,S)		1	
Q3006	Н			1	
Q3007	$\vdash$	2SC1684(Q,R,S)			-
Q4001	$\vdash$	2SC2021M(R,S)		1	
		OR			
		2SD636(Q,R,S)			
Q4002		2SA950(Y)		1	
		OR 2SB643(R,S)			
Q4003		2SD637(Q,R,S)		1	
Q4004		2SC2021M(R,S)		1	
Q4004	-				
	-	OR			
	Ш	2SD636(Q,R,S)			:
Q6001-6005		2SC2021M(R,S)		5	
		OR			
		2SD636(Q,R,S)			
Q6009		2SD638(Q,R,S)		1	
Q6010-6013		2SC2021M(R,S)		4	
•		OR			
		2SD636(Q,R,S)			
06016				1	
Q6016	Н	2SA937M(R,S)			
	-	OR			
		2SB641(Q,R,S)			
Q6017-6019		2SC2021M(R,S)		3	
		OR			
		2SD636(Q,R,S)			
Q7002-7010		2SD637(Q,R,S)		9	
	Н				
	Н			<u> </u>	
	H		DIODEG	<del></del>	
			DIODES		
D1001		\$17840		1	
		OR 1G4841			
D1002	Δ	D1R100		1	
D1003-1005		MA165		3	
D1006		MA4130L	ZENER	1	
D1007		MA170		1	
D1008		MA165		1	
	A	MA167		1	
		D1K40		1	
D1010	$\vdash$		· · · · · ·		
		OR ERB43-04			
	$\vdash \vdash$	OR MA182			
D1011		ERC47-02		1	
		OR RU3M			
		OR S2K20	-		
D1012		D1 K40		1	
		OR ERB43-04		Ť	
	Н				
	$\vdash$	OR MA182			
D1013		MA4068M	ZENER	1	
D1014	Ш	MA165	×	1	
D1015	_l	EK-04	ZENER	1	
		OR ERA81-004		_	
D1019	П	MA4051M	ZENER	1	
~	$\Box$	******	L <del></del>		· · · · · · · · · · · · · · · · · · ·

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
D1020		MA165		1	
D1021 D1022	Δ	MA4051M MA4120H	ZENER ZENER	1	
D1023,1024		MA165		2	
D1025		ERB43-04		1	
		OR \$1K40			
D2004-2007		MA165		4	
	_	OR 188119			
D2009-2011		MA165		3	
		OR 188119			
D3001		MA165		1	
D3004	_	MA165		1	
D3005	_	EQA02-10-C	ZENER	1	
23007	_	OR EQA02-10-D	ZENER	_	
		OR RD11EB	ZENER		
D2007		MA165		1	
D3007	_	MA166		9	
D6001-6009				3	
D6011-6013		MA166	GENER	1	
D6015	H	EQA02-05-A	ZENER	<del>                                     </del>	
	$\vdash$	OR EQA02-05-B	ZENER		
	<u> </u>	OR MA1047	ZENER		
	L	OR RD4.7EB	ZENER		
D6018-6025	-	MA165		8	
		OR 1SS119			
D6030-6032		MA165		3	
		OR 1SS119			
D6034		MA165		1	
		OR 188119			
D6035		MA1030	ZENER	1	
		OR MA1033	ZENER		
		OR MA1036	ZENER		
		OR RD3.0EB	ZENER		
		OR RD3.3EB	ZENER		
		OR RD3.6EL	ZENER		
D6042,6043		MA165		2	
		OR 1SS119			
D6046-6050		MA165		5	
		OR 188119			
D7002		MA165		1	
		OR 188119			
D7004,7005		MA165		2	
	T	OR 155119			
D7006	t	ма4100н	ZENER	1	
	-		RESISTORS		
RX 6001	H	EXB-X14E473K	COMPLEX COMPONENT 1/2W 47K	1	
10001		OR RGLS12T473J		1	
R1001	-	ERDS2TJ334	330K		
R1001	A	ERG3ANJ333	METAL OXIDE 3W 33K	drawn and	
		ERD25FJ6R2	5.2 5.2	•	
R1003			2.28		
R1004	200	ERD25FJ222			
R1005		ERD25F3152	1.5K		
R1006	2009	ERD25FJ4R7	4.7		
R1007	100	ERD25FJ150	15		
R1008	4	ERDZSEJ472	4.78		
R1009	A	ERDS2TJ471	470	observation and	
R1010	2000	ERD25FJ560	56	•	
RIOTI	1	ERD258J330	33	***************************************	
R1012	-	ERDS2TJ331	330		
R1013	1	ERDS2TJ104	100 K		
R1015	_	ERDS1TJ180	1/2W 18	1 -	
		ERDS2TJ221	220	1	
R1017	1	ERDS2TJ562	5.6K	1	
R1017 R1018	-			1 .	1
		ERDS2TJ103	10 K	1	
R1018		ERDS2TJ103 ERDS2TJ562	10k		
R1018 R1019				1	
R1018 R1019 R1020		ERDS2TJ562	5.6K	1	

Ref. No.		Part No.	Part Name & Description	Pcs /	Remarks
	<u> </u>			Set	
R1024		ERDS2TJ560	56	1	
R1026		ERDS2TJ472	4.7K	1	
R1027,1028		ERDS2TJ104	100K	2	
R1029	A.	ERDS2TJ103	10K	1	
R1030		ERD25FJ220	22	1	
R1033	(1)	ERD25FJ472 ERDS2TJ334	4.7K 330K	1	
R1034 R1037	-	ERDS2TJ562	5.6K	1	
R1037	-	ERDS2TJ471	470	1	
R1039	A	ERU25FJ330		1	
R2002		ERDS2TJ334	330K	1	
R2003		ERDS2TJ272	2.7K	1	
R2004	-	ERDS2TJ393	39K	1	
R2005		ERDS2TJ103	10K	1	
R2006		ERDS2TJ223	22K	1	
R2007		ERDS2TJ104	100K	1	
R2008		ERDS2TJ333	33K	1	
R2009	Ι.	ERDS2TJ154	150K	1	
R2010		ERDS2TJ272	2.7K	1	
R2011		ERDS2TJ124	120K		
R2013,2014	L	ERDS2TJ154	150K		
R2015	_	ERDS2TJ274	270K		
R2016		ERDS2TJ473	47K		
R2017	_	ERDS2TJ822	8.2K		
R2018		ERDS2TJ102	1K		
R2019		EVN 38 CA00 B15	VARIABLE 100K	<del>                                     </del>	
R2020		ERDS2TJ562	5.6K		
R2021		ERDS2TJ474	470K	1	
R2022	-	AVNE4AAOB473	VARIABLE 47K	1	
		OR PUNIS A A GO P.E.	VARIABLE 50K		
D2025	╁	EVNE4AA00B54 ERDS2TJ222	2.2K	1 -	
R2025 R2026	-	ERDS2TJ181	180	1	
R2029-2031	╁	ERDS2TJ470	47	3	
R2029-2031	$\vdash$	ERDS2TJ104	100K	-	
R2033	$^{+}$	ERDS2TJ182	1.8K		
R2034		ERDS2TJ682	6.8K		
R2035	A	ERXIZANJR56	1/2W 0.56	1	
R2036		ERDS2TJ124	120K	i	
R2037		ERDS2TJ683	68K	1	
R2038	L	ERDS2TJ223	22K	1	
R2039-2041		ERDS2TJ103	10K	3	
R2042	_	ERDS2TJ105	114		
R2043	_	ERDS2TJ102	1 K	1	
R2044	L	ERDS2TJ472	4.7K		
R2045	$\vdash$	ERDS2TJ103	10K	+	
R2046	╀	ERDS2TJ333	33K		
R2047	-	ERDS2TJ124	120K	_	
R2048	-	ERDS2TJ103	10K		
R2049	+-	ERDS2TJ273 ERDS2TJ332	27K	_	
R2050,2051 R2052	+	ERDS2TJ224	220K		:
R2053	+-	ERDS2TJ152	1.5K		
R2054	$\dagger$	ERDS2TJ392	3.9K	+	
R2055	T	ERDS2TJ682	6.8K	+	
R2063-2065	t	ERDS2TJ103	10K	+	
R2066	Τ.	ERDS2TJ472	4.78	1	
R2068	T	ERDS2TJ822	8.28	1	
R2069		ERDS2TJ101	. 100	1.	
R2070		ERDS2TJ103	108	1	
R3001	$\perp$	EVNE4AA00B23	VARIABLE 2K	1	
	1	ERDS2TJ821	820	1	
R3002	L	ERDS2TJ122	1.2K		
R3002 R3003		ERDS2TJ222	2.28		
R3003 R3004	-		680	1	
R3003 R3004 R3005	Ļ	ERDS2TJ681			
R3003 R3004 R3005 R3006		ERDS2TJ471	470		
R3003 R3004 R3005 R3006 R3007		ERDS2TJ471 ERDS2TJ331	330	1	
R3003 R3004 R3005 R3006 R3007 R3008		ERDS2TJ471 ERDS2TJ331 ERDS2TJ151	330 150	1	
R3003 R3004 R3005 R3006 R3007	_	ERDS2TJ471 ERDS2TJ331	330	1 1 2	

n. s. N-	Part No.	Data Name & December	Pcs	nha	Ref. No.	П	Part No.	Part Name & Description	Pcs	Remarks
Ref. No.		Part Name & Description	/ Set	Remarks					Set	Remaiks
R3013,3014	ERDS2TJ821	820	2		R6034	+	ERDS2TJ472	4.78	1	
R3015	ERDS2TJ181	180	1		R6035,6036	+	ERDS2TJ223	22K	2	
R3016	EVNE4AA00B13 ERDS2TJ152	VARIABLE 1K	1		R6037	+	ERDS2TJ103	10K	1	
R3017 R3018	ERDS2TJ102	1.5k	1		R6038 R6039,6040	$\leftarrow$	ERDS2TJ471 ERDS2TJ472	470	2	
R3019	ERDS2TJ392	3.9K	1		R6041,6042	1	ERDS2TJ153	15K	2	
R3020,3021	ERDS2TJ102	1K	.2		R6045		EROS2TKG1101	PRECISION METAL FILM 1.1K +-2%	1	
R3022	ERDS2TJ271	270	1		R6046	$\overline{}$	ERDS2TJ332	3.3K	1	
R3023	ERDS2TJ223	22K	1		R6047	-	ERDS2TJ113	11K	1	
R3024,3025	ERDS 2TJ103	10K	2		R6048,6049	-	ERDS2TJ224	220K	2	
R3026	ERDS2TJ123	12K	1		R6050		ERDS2TJ223	22K	1	
R3028	ERDS2TJ103	10K	1		R6051,6052		ERDS2TJ104	100K	2	
R3029	ERDS 2TJ562	5.6K	1		R6053,6054		ERDS2TJ472	4.7K	2	
R3030,3031	ERDS2TJ103	10K	2		R6055		EROS2TKG4701	PRECISION METAL FILM 4.7K +-2%	1	
R3032,3033	ERDS2TJ563	56K	2		R6056		ERDS2TJ303	30 K	1	
R3034	ERDS2TJ471	470	1		R6057		ERDS2TJ683	68K	1	
R3035	ERDS2TJ750	75	1		R6058		ERDS2TJ123	12K	1	
R3036	ERDS2TJ102	1 K	1				ERD2FGGF121	120 ↔2%	2	
R3037	ERDS2TJ561	560	1			-	ERDSIFJ2R7	1/2W 2.7		
R3038	ERDS2TJ820	82	1		R6063	-	ERDS2TJ681	680	-1	
R3039	ERDS2TJ822	8.2K	1		R6067		ERDS2TJ103	10K	1	
R3040 R3041	ERDS2TJ103 ERDS2TJ820	10K	1		R6069,6070	-	ERDS2TJ102	1K	2	
R3041	ERDS 2TJ 820 ERDS 2TJ 393	82 39K	1		R6071 R6072	1	ERDS2TJ474 ERDS2TJ223	470K	1	-
R3047	ERDS2TJ562	5.6K	1			1		22K	1	
R3051	ERDS2TJ102	1K	1	•	R6073		ERDS2TJ333 ERDS2TJ274	33K 270K	<u>1</u>	
R3052	ERDS2TJ393	39K	1		R6075	1	ERDS2TJ102	1K	1	
R3053	ERDS2TJ184	180K	1		R6076		ERDS2TJ274	270K	^- 1	
R3054	ERDS2TJ562	5.6K	1		R6077		ERDS1TJ101	1/2W 100	1	
R3055	ERDS2TJ101	100	1		R6078		ERDS2TJ122	1.2K	1	
R3056	ERDS2TJ102	1K	1		R6079		ERDS2TJ223	22K	1	
R4001	ERDS2TJ333	33K	1		R6080		ERDS2TJ473	47K	1	
R4002	ERDS2TJ124	120K	1		R6081-6087		ERDS2TJ562	5.6K	7	
R4003	ERDS2TJ101	100	1		R6088,6089		ERDS2TJ182	1.8K	2	
R4004	AVNE4AAOB472	VARIABLE 4.7K	1		R6090	Ш	ERDS2TJ562	5.6K	1	
	OR				R6092-6094	Ш	ERDS2TJ222	2.2K	3	
	EVNE4AA00B53	VARIABLE 5K			R6095	Ш	ERDS2TJ102	1 K	1	
R4005	ERDS2TJ102	1K	1	-	R6096	Ш	ERDS2TJ822	8.2K	1	
R4007	AVNE4AA00B23	VARIABLE 2K	1		R6104		ERDS 2TJ271	270	_1_	
	OR				R6112-6118		ERDS2TJ221	220	. 7	
7,000	EVNE4AA00B23	VARIABLE 2K			R6122,6123		ERDS2TJ332	3.3K	2	
R4008 R4009	ERDS2TJ103 ERDS2TJ563	10K	1		R6125		EROS2TKG2202	PRECISION METAL FILM 22K +-2%	1	700 NU 1000
R4010	ERDS2TJ332	3.3K	1		R6128		ERDS2TJ152	1.5K		FOR PV-1230
R4010	ERDS2TJ223	22K	2		R6129		ERDS2TJ102	1 K	1	FOR PV-1222, PV-1225
R4013	ERDS2TJ221	220	1		R6130 R6133		ERDS2TJ103 ERDS2TJ102	1K	1	
R4014	ERDS2TJ182	1.8K	1		R6134		ERDS2TJ472	4.7K	1	
R4015	ERDS2TJ225	2.2M	1		R6135		ERDS2TJ104	100K		
R4016	ERDS2TJ183	18K	1		R6136		ERDS2TJ472	4.7K		
R4017	ERDS2TJ223	22K	1		R6138		ERDS2TJ101	100	1	
R4018	ERDS2TJ470	47	1		R6139-6144	1	ERDS2TJ102	1K		
R4019	ERDS2TJ221	220	1		R6145		ERDS2TJ472	4.7K	1	
R4020	ERDS2TJ331	330	1		R6146	$\overline{}$	ERDS2TJ104	100 K	1	
R4021	ERDS2TJ470	. 47	1		R6147		ERDS2TJ101	100	1	
R4022	ERDS2TJ182	1.8K	1		R6148		ERDS2TJ103	10K	1	
R4023	ERDS2TJ472	4.7K	1		R6149		ERDS2TJ473	47K	1	
R40 24	ERDS2TJ562	5.6K	1		R6150		ERDS2TJ472	4.7K	1	
R4025	AVNE4 AAOO B15	VARIABLE 100K	1		R6151		ERDS2TJ102	1K	1	
	OR				R7003,7004		ERDS2TJ103	10K	2	
h, 004	EVNE4AA00B15	VARIABLE 100K			R7005		ERDS2TJ472	4.7K	1	
R4026	ERDS2TJ223	22K	1		R7006		ERDS2TJ105	1M	1	
R4027	ERDS2TJ470	47	1		R7007		ERDS2TJ273	27K	_1_	
R4028	ERDS2TJ561	560	1		R7008	-	ERDS2TJ681	680	1	
R4029 R4030-4032	ERDS2TJ101 ERDS2TJ472	100 4.7K	3		R7009		ERDS2TJ104	100K	1	-
R4030-4032	ERDS2TJ472 ERDS2TJ101	4.7k	1		R7011		ERDS2TJ561	560	1	
R6001	ERDS2TJ101	470K	1	——————————————————————————————————————	R7012		ERDS2TJ153	15K		1:
R6014-6016	ERDS2TJ101	100	3	-	R7013 R7014		ERDS2TJ224 ERDS2TJ563	220K 56K	1	
R6017-6019	ERDS2TJ103	10K	3		R7014 R7015		ERDS2TJ263 ERDS2TJ223	22K	1	
R6030-6032	ERDS2TJ103	10K	3		R7016		ERDS2TJ562	5.6K	1	
			-			·		, J. OK		• • • • • • • • • • • • • • • • • • • •

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R7017	ERDS2TJ333	33K		
R7018	ERDS2TJ472	4.7K	1	
R7019	ERDS2TJ104	100K	1	
R7020	ERDS2TJ102	1K	1	
R7021,7022	ERDS2TJ473	47K	2	
R7023	ERDS2TJ104	100K	1	
R7024	EROS2TKG1203	PRECISION METAL FILM 120K +-2%	1	
R7025	EROS2TKG6802	PRECISION METAL FILM 68K +-2%	1_	
R7026	ERDS2TJ393	39K	1	
R7027	ERDS2TJ681	680	1	
R7028	AVNE 4AAO B10 2	VARIABLE 1K	1	
	OR			
	EVNE4AA00B13	VARIABLE 1K		
R7029	ERDS2TJ563	56K	1	
R7030	ERDS2TJ123	12K	1	
R7031	ERDS2TJ153	15K	1	
R7032,7033	ERDS2TJ104	100 K	2	
R7034	ERDS2TJ822	8.2K	1	
R7035-7037	ERDS2TJ104	100K	3	
R7039	ERDS2TJ104	100K	1	
R7040	ERDS2TJ151	150	1	
R7041	ERDS2TJ221	220	1	
R7042	ERDS 2TJ101	100	1	-
	-			
	-			
		CAPACITORS	-	
CX6001	EXFP5472ZL	COMPLEX COMPONENT 50V 0.0047	1	
CA0001	BRF1 54722E	+80%-20%	÷	
CX 6002	EXFP7101ML	COMPLEX COMPONENT 50V 100P	1	
GLOOUZ.	JART / TOTAL	+-20%		
C1003.1004	A vcksecel	CERAMIC 0.001	2	
	<u> А</u> всваеретети	ELECTROLYTIC 200V 120	1	
•	<b>♠</b> KM250VB4R7	ELECTROLYTIC 250V 4.7	1	
C1007	KMA16VB-22	ELECTROLYTIC 16V 22	1	
C1008	⚠ vcksecei	CERAMIC 0.001	1	
C1009	<b>⚠</b> KM50VB-22	SLECTROLYTIC 50V 22	1	
C1010	KM50VB-2.2	ELECTROLYTIC 50V 2.2	1	
C1011	ECQB1H153JZ	POLYESTER 50V 0.015 +-5%	1	
	OR ECQV05153J2	POLYESTER 50V 0.015 +-5%		
	OR ECQV1H153J2	POLYESTER 50V 0.015 +-5%		
C1012	SXE50VB-47	ELECTROLYTIC 50V 47	1	
C1013	ECEA1CG222S	ELECTROLYTIC 16V 2200	1	
	OR SXE16VB2200	ELECTROLYTIC 16V 2200		
C1014		· · · · · · · · · · · · · · · · · · ·		
	ECEA1CG222S	ELECTROLYTIC 16V 2200	1	
	OR ECEA1CU222	ELECTROLYTIC 16V 2200 ELECTROLYTIC 16V 2200	1	
		ELECTROLYTIC 16V 2200 ELECTROLYTIC 16V 2200	1	
C1015	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47	ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           SLECTROLYTIC         50V 47	1	
C1015	OR ECEA1 CU222 OR SXE16VB220C SXE50VB-47 ECEA0 JG102S	ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         50V 47           ELECTROLYTIC         6.3V 1000		
C1016	OR ECEA1 CU222 OR SXE16VB2200 SXE50VB-47 ECEA0 JG102S OR SXE6VB1200	ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         50V 47           ELECTROLYTIC         6.3V 1000           ELECTROLYTIC         6V 1200	1	
	OR ECEA1 CU222 OR SXE16VB220C SXE50VB-47 ECEA0 JG102S OR SXE6VB1200 ECEA0 JS102	ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         50V 47           ELECTROLYTIC         6.3V 1000           ELECTROLYTIC         6V 1200           ELECTROLYTIC         6.3V 1000	1	
C1016	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102	ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         16V 2200           ELECTROLYTIC         50V 47           ELECTROLYTIC         6.3V 1000           ELECTROLYTIC         6V 1200           ELECTROLYTIC         6.3V 1000           ELECTROLYTIC         6.3V 1000           ELECTROLYTIC         6.3V 1000	1 1 1	
C1016	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV	ELECTROLYTIC	1	
C1016 C1017 C1019,1020	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KV	ELECTROLYTIC	1 1 2	
C1016 C1017 C1019,1020 C1021	OR ECEAI CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KZ KM16VB-10	ELECTROLYTIC	1 1 2	
C1016 C1017 C1019,1020	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KV	ELECTROLYTIC	1 1 2	
C1016 C1017 C1019,1020 C1021 C1022,1023	OR ECEAICU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB120 OR ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KZ KM16VB-10 ECKW1H103ZF5	ELECTROLYTIC	1 1 2 2 1 2	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024	OR ECEAICU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JS102 OR ECEA0JU102 ECCMH1103KV OR ECMH1103KV ECCMH1103KV ECKW11103ZF5 ECKW11103ZF5	ELECTROLYTIC	1 1 2 1 2 1 1	
C1016 C1017 C1019,1020 C1021 C1022,1023	OR ECEAICU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB120 OR ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KZ KM16VB-10 ECKW1H103ZF5	ELECTROLYTIC	1 1 2 2 1 2	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECW1H103KV COR ECW1H103KV ECW1H103KV ECW1H103KV ECW1H103KV ECW1H103KV ECW1H103KV ECW1H103KV ECW1H103KV	ELECTROLYTIC	1 1 2 2 1 2 3	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV ECQM1H103KV ECGM1H103XV ECGM1H103XF5 ECKW1H103ZF5 ECKW1H103ZF5	ELECTROLYTIC	1 1 1 2 1 2 1 3	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JU102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KV ECQM1H103KV ECQM1H103KP ECKW1H103ZF5 ECKW1H103ZF5 ECKW1H103ZF5 ECKW1H103ZF5	ELECTROLYTIC	1 1 1 2 1 2 1 3	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029 C1030	OR ECEA1 CU222 OR SXE16VB220C SXE50VB-47 ECEA0 JG102S OR SXE6VB1200 ECEA0 JS102 OR ECEA0 JU102 ECQM1H103KV OR ECQM1H103KV KM16VB-10 ECKW1H103ZF5 ECKW1H103ZF5 EKW1H103ZF5 EKW1H103ZF5 EKW1H103ZF5	ELECTROLYTIC	1 1 1 2 1 2 1 3	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029 C1030 C1031	OR ECEAI CU222 OR SXE16VB220C SXE50VB-47 ECEA0 JG102S OR SXE6VB1200 ECEA0 JS102 OR ECEA0 JU102 ECQM1H103KV OR ECQM1H103KV ECQM1H103KP ECKW1H103KP5 ECKW1H103KP5 ECKW1H103KP5 ECKW1H102KP5 ECKW1H102KP5 ECKW1H102KP5 ECKW1H102KP5 ECKW1H102KP5	ELECTROLYTIC	1 1 1 2 1 2 1 3	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029 C1030	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KV ECQM1H103KV ECQM1H103KV ECKW1H103KF5 ECKW1H103KF5 ECKW1H102KB5 ECKW1H103KF5 ECKW1H102KB5 ECKW1H102KB5	ELECTROLYTIC	1 1 1 2 1 2 1 3	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029 C1030 C1031 C2001	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KV ECQM1H103KV ECQM1H103KV ECQM1H103KV ECGM1H103KV ECKW1H103KF5 ECKW1H103KF5 ECKW1H102KB5 ECKW1H102KB5 ECKW1H102KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5	ELECTROLYTIC	1 1 1 2 1 2 1 3 1 1 1 1	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029 C1030 C1031 C2001	OR ECEA1CU222 OR SXE16VB22OC SXE50VB-47 ECEA0JG102S OR SXE6VB12OO ECEA0JS102 OR ECEA0JU102 ECCMH1103KV OR ECMH1103KV OR ECMH1103KV ECKM11103KF ECKW11103KF ECKW11103KF ECKW11102KB5 ECKW11103KF	ELECTROLYTIC	1 1 1 2 1 2 1 3 1 1 1 1	
C1016 C1017 C1019,1020 C1021 C1022,1023 C1024 C1025-1027 C1028 C1029 C1030 C1031 C2001	OR ECEA1CU222 OR SXE16VB220C SXE50VB-47 ECEA0JG102S OR SXE6VB1200 ECEA0JS102 OR ECEA0JU102 ECQM1H103KV OR ECQM1H103KV ECQM1H103KV ECQM1H103KV ECQM1H103KV ECGM1H103KV ECKW1H103KF5 ECKW1H103KF5 ECKW1H102KB5 ECKW1H102KB5 ECKW1H102KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5 ECKW1H104KB5	ELECTROLYTIC	1 1 1 2 1 2 1 3 1 1 1 1 1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C2005,2006	L	VCYSACR562NX	CERAMIC 16V 0.0056 +-30%	2	
C2007	_	ECEA1HSOR1	ELECTROLYTIC 50V 0.1	1_	
	-	OR ECEAIHUOR1	ELECTROLYTIC 50V 0.1		
C2008	<u> </u>	ECEAOJK101	ELECTROLYTIC 6.3V 100	1	
C2009	-	VCYSACR103MY	CERAMIC 16V 0.01 +-20%	1	
C2010	-	DR FCOMINIONEZ	POLYESTER 50V 0.001	1	_
C2011		OR ECQM1H102KZ VCYSACR562NX	POLYESTER 50V 0.001 CERAMIC 16V 0.0056 +-30%	1	* 1
C2012		ECEA1HKOR1	ELECTROLYTIC 50V 0.1	1	
C2013		ECEAOJK470	ELECTROLYTIC 6.3V 47	1	
C2014		ECEAOJS221	ELECTROLYTIC 6.3V 220	1	
		OR ECEAOJU221	ELECTROLYTIC 6.3V 220		
C2015		VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C2016		ECQM1H273KV	POLYESTER 50V 0.027	1	·
	Г	OR ECQM1H273KZ	POLYESTER 50V 0.027		
C2017		ECQV05274JZ	POLYESTER 50V 0.27 +-5%	1	
		OR ECQV1H274JZ	POLYESTER 50V 0.27 +-5%		
C2018		VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C2019		ECEA1HK010	ELECTROLYTIC 50V 1	1	
C2020		VCYSACR182NX	CERAMIC 16V 0.0018 +-30%	1	
C2021,2022		ECEA1CS100	ELECTROLYTIC 16V 10	2	
	_	OR ECEA1CU100	ELECTROLYTIC 16V 10		
C2023	L	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEAO JU470	ELECTROLYTIC 6.3V 47		
C2024	_	VCYW1E223KX	CERAMIC 25V 0.022	1	
C2025	_	ECEA0 JS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEAOJU470	ELECTROLYTIC 6.3V 47		
C2028-2030	-	ECEA1 HN2R2S	ELECTROLYTIC 50V 2.2	3	
C2031	-	ECEA1CS101	ELECTROLYTIC 16V 100	1	
	-	OR ECEA1CU101	ELECTROLYTIC 16V 100		
C2032	$\vdash$	VCYSACR682NX	CERAMIC 16V 0.0068 +-30%	1	
C2033	-	OR ECEA1CU221	ELECTROLYTIC 16V 220 ELECTROLYTIC 16V 220	1	
C2034	H	VCYSARC102KB	ELECTROLYTIC 16V 220 CERAMIC 16V 0.001	1	
C2035	-	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
02033	H	OR ECEALEU3R3	ELECTROLYTIC 25V 3.3		
C2036	$\vdash$	ECEA1HSR22	ELECTROLYTIC 50V 0.22	1	
C2037	Г	ECQM1H123KV	POLYESTER 50V 0.012	1	
		OR ECQM1H123KZ			
C2038		ECEA1CK100	ELECTROLYTIC 16V 10	1	
C2039		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2040		ECEA1HN010S	ELECTROLYTIC 50V 1	1	
C2041		ECEA1HSOR1	ELECTROLYTIC 50V 0.1	1	
		OR ECEA1HUOR1	ELECTROLYTIC 50V 0.1		
C2042		ECEA1CS100	ELECTROLYTIC 16V 10	1	
		OR ECEA1CU100	ELECTROLYTIC 16V 10		
C2043		VCYW1E152KX	CERAMIC 25V 0.0015	1	
C2044	_	VCYSACR222NX	CERAMIC 16V 0.0022 +-30%	1	
C2045	_	ECQM1H563KV	POLYESTER 50V 0.056	1	
C2046	<u> </u>	ECQM1H393KV	POLYESTER 50V 0.039	1	
C2048		ECEAOJS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEAOJU470	ELECTROLYTIC 6.3V 47		
C2049	$\vdash$	ECQV05224JZ	POLYESTER 50V 0.22 +-5%	1	
00050		OR ECQV1H224JZ			
C2050		OR ECEA1HU2R2	ELECTROLYTIC 50V 2.2	1	
C20 E 1		VCYSARH102KB	ELECTROLYTIC 50V 2.2 CERAMIC 50V 0.001	1	
C2051 C3001		ECCW1H820JC5	CERAMIC 50V 0.001 CERAMIC 50V 82P +-5%	1	
C3001	┢	VCYSAHR221KB	CERAMIC 50V 220P	1	
C3003	-	VCYSACR103NY	CERAMIC 16V 0.01 +-30%	1	
C3004		ECCW1H820JC5	CERAMIC 50V 82P +-5%	1	
C3005		ECEA1CKS220	ELECTROLYTIC 16V 22	1	
	<u> </u>	OR ECEAICK220	ELECTROLYTIC 16V 22		
C3006		VCYSACR103NY	CERAMIC 16V 0.01 +-30%	1	
C3007		VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1	
C3008		ECEA1EKS4R7	ELECTROLYTIC 25V 4.7	1	
		OR ECEA1EK4R7	ELECTROLYTIC 25V 4.7		
C3009,3010		VCYSACR103NY	CERAMIC 16V 0.01 +-30%	2	
C3011,3012		VCYSAHR680KC	CERAMIC 50V 68P	2	

Ref. No.	Part No.	Part Name &	Description	Pcs /	Remarks
C3013	ECEA1EKS4R7	ELECTROLYTIC	25V 4.7	Set	
	OR ECEALEK4R7	ELECTROLYTIC	25V 4.7		
C3014	VCYSAHR271KB	CERAMIC	50V 270P	1	
C3015	ECCW1H470JC5	CERAMIC	50V 47P +-5%	1	
C3016	VCYSACR103NY	CERAMIC	16V 0.01 +-30%	1	
C3017	VCYW1C104MX	CERAMIC	16V 0.1 +-20%	1	
C3018	ECCW1H560JC5	CERAMIC	50V 56P +-5%	1	
C3019	ECCW1H220JC5	CERAMIC	50V 22P +-5%	1	
C3020	ECCW1H181JC5	CERAMIC	50V 180P +-5%	1	
C3021	VCYSAHR681KB	CERAMIC	50V 680P	1	
C3022	VCYSACR103NY	CERAMIC	16V 0.01 +-30%	1	
C3023	ECEAOJS470	ELECTROLYTIC	6.3V 47	1	
	OR ECEAOJU470	ELECTROLYTIC	6.3V 47		
C3024	ECQV05823JZ	POLYESTER	. 50V 0.082 +-5%	1	
C3026	ECQV05563JZ	POLYESTER	50V 0.056 +-5%	1	
	OR ECQV1H563JZ	POLYESTER	50V 0.056 +-5%		
C3027	VCYSACR103NY	CERAMIC	16V 0.01 +-30%	1_	
C3028	ECEA1CS470	ELECTROLYTIC	16V 47	1	
	OR ECEA1CU470	ELECTROLYTIC	16V 47		
C3029	ECEAOJS471	ELECTROLYTIC	6.3V 470	1	
	OR ECEA0JU471	ELECTROLYTIC	6.3V 470		
C3030	VCYSAHR681KB	CERAMIC	50V 680P	1	·
C3032	ECEAOJS221	ELECTROLYTIC	6.3V 220	1	
	OR ECEAOJU221	ELECTROLYTIC	6.3V 220		
C3038	VCYW1E392KX	CERAMIC	25V 0.0039	1	
C3039	ECCR1H390JC5	CERAMIC	50V 39P	1	
C4001	VCYSACR102KB	CERAMIC	16V 0.001	1	
C4002	ECEA50M1R	ELECTROLYTIC	50V 1	1	·
C4003	ECEA1AK330	ELECTROLYTIC	10V 33	1	
C4004	ECQB1H333KH	POLYESTER	50V 0.033	1	
	OR ECQB1H333KZ	POLYESTER	50V 0.033		
C4005	ECEA50ZR33	ELECTROLYTIC	50V 0.33	1	
C4006	VCYW1E103KX	CERAMIC	25V 0.01	1	
C4007	ECEA1 CK100	ELECTROLYTIC	16V 10	1	
C4008	ECEA1HK010	ELECTROLYTIC	50V 1	1	
C4009	VCYSACR102KB	CERAMIC	16V 0.001	1	
C4010	ECEA1CK100	ELECTROLYTIC	16V 10	1	
C4011	ECEA1HK010	ELECTROLYTIC	50V 1	1	
C4012	ECEA1CK100	ELECTROLYTIC	16V 10	1	
C4013	ECEA1 CK 220	ELECTROLYTIC	16V 22	1	
C4014	ECEA1HKOR1	ELECTROLYTIC	50V 0.1	1	
C4015	ECEA1CK100	ELECTROLYTIC	16V 10	1	
C4016	ECEA1AK330	ELECTROLYTIC	10V 33	1	
C4017 C4018	ECEAI CS330	ELECTROLYTIC	16V 33	1	
C4019	ECEA1HKOR1	ELECTROLYTIC		1	
C4020	ECEA50ZR1 VCYW1E563KX	CERAMIC	50V 0.1 25V 0.056	1	
C4021	ECEA50 ZR22 ECEA50 ZR47	ELECTROLYTIC ELECTROLYTIC	50V 0.22 50V 0.47	1	
C4023	ECEA1CS220	ELECTROLYTIC	16V 22	1	
C4024	ECCW2H221K2	CERAMIC	500V 220P	1	<u> </u>
C4025	ECQM2682KZ	POLYESTER	200V 0.0068	1	
C4026,4027	VCYSACR103MY	CERAMIC	16V 0.01 +-20%	2	
C4028	ECEA1 CS220	ELECTROLYTIC	16V 22	1	
C4029	VCYSACR471KB	CERAMIC	16V 470P	1	
C4030	VCYSACR103MY	CERAMIC	16V 0.01 +-20%	1	
C4031	VCYS0001	MULTI FUNCTION	0.001	1	
C4032	ECEA1 CK 220	ELECTROLYTIC	16V 22	1	
C6001	ECEA1HS010	ELECTROLYTIC	50V 1	1	
C6002	ECEAOJS221	ELECTROLYTIC	6.3V 220	1	
C6003	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	1	
C6004	ECRHAO20D11	TRIMMER	20P	1	
		TRIMMER	20 P		
C6005	VCYSARH8R2KC	CERAMIC	50V 8.2P	- 1	
C6006-6008	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	3	
C6010		ELECTROLYTIC	16V 10	1	
C6013	VCYSARC222NX	CERAMIC	16V 0.0022 +-30%	1	
			50V 0.1	1	
C6024	ECEA50ZR1	ELECTROLYTIC			
		ELECTROLYTIC	6.3V 47	1	

$\Box$			Pcs	
Ref. No.	Part No.	Part Name & Description	/ Set	Remarks
C6031	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	FOR PV-1230
C6033	ECEA1CSS221	ELECTROLYTIC 16V 220	1	
C6034	VCYSARH102KB	CERAMIC 50V 0.001	1	
C6037,6038	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	2	
C6039	VCYW1E273KX	CERAMIC 25V 0.027	1	
C6135	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7001	ECEA1HS010	ELECTROLYTIC 50V 1	1	
L	OR ECEA1HUO10	ELECTROLYTIC 50V 1		
C7002	ECEA1CS220	ELECTROLYTIC 16V 22	1	
	OR ECEA1CU220	ELECTROLYTIC 16V 22		<u> </u>
C7003	ECKW1H1032F5	CERAMIC 50V 0.01	1	
	7074170477	+80%-20%		
C7004	ECEA1ES4R7	ELECTROLYTIC 25V 4.7 ELECTROLYTIC 25V 4.7	1	
07005	OR ECEA1EU4R7	ELECTROLYTIC 25V 4.7 ELECTROLYTIC 16V 47	1	
C7005	OR ECEA1CU470	ELECTROLYTIC 16V 47	1	
C7006	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
07000	ECRWINIOSZES	+80%-20%	_	
C7007	ECQBIH103KZ	POLYESTER 50V 0.01	1	
	OR ECOM1H103KV		-	
	OR ECQM1H103KZ			
C7008	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1	<u> </u>	
C7009	ECQB1H103KZ	POLYESTER 50V 0.01	1	
	OR ECQM1H103KV			
	OR ECQMIHIO3KZ			
C7010	ECEA1CS471	ELECTROLYTIC 16V 470	1	
	OR ECEA1CU471	ELECTROLYTIC 16V 470		
C7011	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
	OR ECEA1EU3R3	ELECTROLYTIC 25V 3.3		
C7012	ECCW1H101JC5	CERAMIC 50V 100P +-5%	1	
C7013	ECEA1EN4R7S	ELECTROLYTIC 25V 4.7	1	
C7014	ECEA1HS010	ELECTROLYTIC 50V 1	1	•
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C7015	ECQB1H273KZ	POLYESTER 50V 0.027	1	
-		POLYESTER 50V 0.027		<u> </u>
<u> </u>	OR ECQM1H273KZ			
C7017	ECEA0JS102	ELECTROLYTIC 6.3V 1000	1	
-	OR ECEAOJU102	ELECTROLYTIC 6.3V 1000		
C7019	ECEA1ES100	ELECTROLYTIC 25V 10	1	
	OR ECEALEU100	ELECTROLYTIC 25V 10		·
C7020	ECEA50 ZR1	ELECTROLYTIC 50V 0.1 CERAMIC 50V 18P +-5%	1	
C7021,7022	ECCW1H180JC5	CERAMIC 50V 18P +-5% ELECTROLYTIC 50V 1	1	
C/023	OR ECEA1HU010	ELECTROLYTIC 50V 1		
	OK BCBAIRGOID	ELECTROLITIC 50V I	-	
l				
		COILS		<del>                                     </del>
L1002	VLQS0009	56	1	
	OR VLQS11H560M	56 +-20%		
L1003	VLQS0006	22	1	
	OR VLQS09H220M	22 +-20%		
L1004	VLQS0007	100	1	
	OR VLQS09H101K	100		
L1007	VLQS05H4R7K	4.7	1	
L1008	VLQS05R220K	22	1	
	OR VLQS66R220K	22		
L3001	VLQS05R820K	82	1	
	OR VLQS66R820K	82		
L3002	VLQS05R181K	180	1	
	OR VLQS66R181K	180		
L3003	VLQS05RI01K	100	1	
	OR VLQS66R101K	100		
L3004	VLQS05R120K	12	1	
1 2005 2005	OR VLQS66R120K	12		
L3005,3006	VEKS1358	20	1	
L3007	VLQS05R390K	39	1	
1 3008	OR VLQS66R390K VLQS05R470K	47	1	
L3008		47	-	
	OR VLQS66R470K	4/		L

Ref. No.	Ī	Part No.	Part Name & Description	Pcs /	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs /	Remarks
L3009	+	VLQS05R101K	100	Set 1					Set	
	╈	OR VLQS66R101K								
L3010	+	VLQS05R330K	33	1				OPERATION C.B.A		
	+	OR VLQS66R330K								
L3011	+	VLQS05R150K	15	1 -						
	+	OR VLQS66R150K		-						
L3012,3013	+	VLQS05R101K	100	2		:		DIODES		
25012,5015	+	OR VLQS66R101K	100			D6301-6316	MA166		16	
L4001	+	VLQS68F222K	2.2MH	1		D6318,6319	MA166		2	
	+		2.2MH	1		D6320	MA165		1	
L4002		VLQS67R222K	470	1		D0320	OR 188119			
L4003	-	VLQS66R471K					OK 133119			
L6001	-	VLQS66F470K	47	1		-				
L7001,7002	4	VLQSL01101K	100	2					-	
L7003	$\perp$	VLQS66R330K	33	1				- Tayamana		
	1							RESISTORS		
					-	R6320	ERDS2TJ102	1 K	1	
						R6321	EVJFFAF15B15	VARIABLE 100K	1	
	L		CRYSTALS OSCILLATOR			R6322	ERDS2TJ332	3.3K	1	
X6001		VSXS0002		1		R6323	EVJFPAF15B15	VARIABLE 100K	1	
	Ĺ				`	R6324	ERDS2TJ223	22K	1	
	Π		·					1. 1		
	T		PIN HEADERS							
P2001		VJPS0041	10P	1				SWITCHES		
P2002		VJPS0105	9P	1		SW6301-6316	EVQ-QJ104K	PUSH	16	
P2003	$\top$	VJPS0110	2P	1		SW6320	VSSS0024	SP/LP/SLP SELECT	1	
P4001	+	VJPS0100	4P	1				-		
P6001		VJPS0119	11P	1						
P6002	+-	VJPS0110	2P	1						
P6003	+	VJPS0127	40P	1				MISCELLANEOUS		
P6005	+	VJPS0098	2P	1			VMDS0223	DISPLAY TUBE HOLDER	1	(A),(C)
P7001	+	VJPS0016	12P				VMDS0231	TIMER DISPLAY TUBE HOLDER	1	(B)
F 7001	+	V3F30010	121	<u> </u>		DP6301	VSZS0023	DISPLAY TUBE	1	(2)
	+					210301	10200023	DISTRICT TODA		
	+									
	+		The state of the s							
			TRANSFORMERS					CHANNEL OFFICE OF P		
T1001		ETE35K7AV		. 1		-	<del></del>	CHANNEL SELECT C.B.A		
	and a	OR ETS 35K8OA								
						ļ				
T4001		EIQ7QG001B		1						
14001		OR EIQ7QG003B	-	1		-	-			
14001				1				INTEGRATED CIRCUITS		
14001		OR EIQ7QG003B		1		IC7301	UPC1362C	INTEGRATED CIRCUITS	1	
		OR EIQ7QG003B		1		107301	UPC1362C	INTEGRATED CIRCUITS	1	
14001		OR EIQ7QG003B		1		107301	UPC1362C	INTEGRATED CIRCUITS	1	
14001		OR EIQ7QG003B	PRINTED CIRCUIT BOARD ASSEMBLY	1		107301	UPC1362C		1	
14001		OR EIQ7QG003B	PRINTED CIRCUIT BOARD ASSEMBLY	1		107301	UPC1362C	INTEGRATED CIRCUITS TRANSISTORS	1	
14001		OR EIQ7QG003B	PRINTED CIRCUIT BOARD ASSEMBLY	1		IC7301 Q7301	UPC1362C 2SB642(Q,R,S)		1	
14001		OR EIQ7QG003B OR VLTS0023								
14001		OR EIQ7QG003B OR VLTS0023				Q7301	2SB642(Q,R,S)		1	
14001		OR EIQ7QC003B OR VLTS0023  VEPS0337A	LUMINANCE C.B.A	1		Q7301 Q7302	2SB642(Q,R,S) 2SD637(C,R)		1 1	
14001		OR EIQ7QC003B OR VLTS0023  VEPS0337A	LUMINANCE C.B.A	1		Q7301 Q7302	2SB642(Q,R,S) 2SD637(C,R)		1 1	
14001		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A	LUMINANCE C.B.A CHROMINANCE C.B.A	1		Q7301 Q7302	2SB642(Q,R,S) 2SD637(C,R)		1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A	LUMINANCE C.B.A CHROMINANCE C.B.A	1		Q7301 Q7302	2SB642(Q,R,S) 2SD637(C,R)		1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A	LUMINANCE C.B.A CHROMINANCE C.B.A	1		Q7301 Q7302 Q7303	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S)	TRANSISTORS	1 1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A	LUMINANCE C.B.A CHROMINANCE C.B.A TV DEMODULATOR UNIT	1		Q7301 Q7302 Q7303	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S) MA166	TRANSISTORS	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS	1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S) MA166 MA166C	TRANSISTORS  DIODES	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS FASTENER	1 1 1 1 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S) MA166 MA166C LN31GCPHLM-U	TRANSISTORS	1 1 1 1 12 12 12	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS FASTENER CLAMPER	1 1 1 1 1 1 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S) MA166 MA166C LN31GCPHLM-U MA166C	TRANSISTORS  DIODES	1 1 1 1 12 12 12	
		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T188  VJFS0007  VJFS0010	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER	1 1 1 1 1 1 1 1 1 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S)  MA166 MA166C LN31CCPHLM-U MA166C MA165	TRANSISTORS  DIODES	1 1 1 1 12 12 12 12 12	
		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S  VJFS0007  VJFS0010  VMAS1008	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  PB ANGLE	1 1 1 1 1 1 1 1 1 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S) MA166 MA166C LN31GCPHLM-U MA166C	TRANSISTORS  DIODES	1 1 1 1 12 12 12	
		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007 VJFS0010 VMAS1008 VMGS0049	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS FASTEMER CLAMPER CLAMPER PB ANGLE CUSHION	1 1 1 1 1 1 1 1 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S)  MA166 MA166C LN31CCPHLM-U MA166C MA165	TRANSISTORS  DIODES	1 1 1 1 12 12 12 12 12	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007 VJFS0010 VMAS1008 VMCS0049 VMTS0035	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  PB ANGLE  CUSHION  CUSHION	1 1 1 1 1 1 1 1 3		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S)  MA166 MA166C LN31CCPHLM-U MA166C MA165	TRANSISTORS  DIODES	1 1 1 1 12 12 12 12 12	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S  VJFS0007  VJFS0010  VMAS1008  VMCS0049  VMTS0035  VMXS0371	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS FASTEMER CLAMPER CLAMPER CLAMPER PB ANGLE GUSHION CUSHION SPACER	1 1 1 1 1 1 1 1 3 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S)  MA166 MA166C LN31CCPHLM-U MA166C MA165	DIODES  L.E.D	1 1 1 1 12 12 12 12 12	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007 VJFS0010 VMAS1008 VMCS0049 VMTS0035	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  PB ANGLE  CUSHION  CUSHION	1 1 1 1 1 1 1 1 3 1 1 3		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337 D7338-7349 D7350	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S) MA166 MA166C LN31GCPHLM-U MA166C MA165 MA166	TRANSISTORS  DIODES  L.E.D  RESISTORS	1 1 1 1 12 12 12 1 1 12	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S  VJFS0007  VJFS0010  VMAS1008  VMCS0049  VMTS0035  VMXS0371	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS FASTEMER CLAMPER CLAMPER CLAMPER PB ANGLE GUSHION CUSHION SPACER	1 1 1 1 1 1 1 3 1 3		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S)  MA166 MA166C LM31GCPHLM-U MA166C MA165 MA166	TRANSISTORS  DIODES  L.E.D  RESISTORS	1 1 1 12 12 12 1 1 12 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0010 VMAS1008 VMCS0049 VMTS0035 VMXS0371 VMX0573	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  CLAMPER  PB ANGLE  CUSHION  CUSHION  SPACER  SPACER	1 1 1 1 1 1 1 1 3 1 1 3		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337 D7338-7349 D7350	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S) MA166 MA166C LN31GCPHLM-U MA166C MA165 MA166	TRANSISTORS  DIODES  L.E.D  RESISTORS	1 1 1 12 12 12 1 1 12 1	
		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007 VJFS0010 VMAS1008 VMCS0049 VMTS0035 VMXS0371 VMX0573 VSCS0396	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS FASTENER CLAMPER CLAMPER CLAMPER PB ANGLE CUSHION CUSHION SPACER SPACER SHIELD CASE	1 1 1 1 1 1 1 3 1 3		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337 D7338-7349 D7350	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S)  MA166 MA166C LM31GCPHLM-U MA166C MA165 MA166	TRANSISTORS  DIODES  L.E.D  RESISTORS	1 1 1 12 12 12 1 1 12 1 1	
		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007 VJFS0010 VMAS1008 VMCS0049 VMTS0035 VMXS0371 VMX0573 VSCS0396 VSCS0397	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  CLAMPER  CLAMPER  CUSHION  SPACER  SPACER  SHIELD CASE  SHIELD CASE	1 1 1 1 1 1 1 1 1 3 1 1 3 1 1 1 1 1 1 1		D7301 Q7302 Q7303  D7301-7312 D7313-7324 D7325-7336 D7337 D7338-7349 D7350  R7302 R7302	2SB642(Q,R,S) 2SD637(Q,R,S) 2SD637(Q,R,S)  MA166 MA166C LN31GCPHLM-U MA166C MA165 MA166 ERDS2TJ563 ERDS2TJ563	TRANSISTORS  DIODES  L.E.D  RESISTORS  56K 27K	1 1 1 12 12 12 1 1 12 1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T188  VJFS0007  VJFS0010  VMAS1008  VMS0049  VMTS0035  VMXS0371  VMXD573  VSCS0396  VSCS0397  VSCS0398  VSCS0400	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  CLAMPER  CLAMPER  CUSHION  CUSHION  SPACER  SPACER  SHIELD CASE  SHIELD CASE  SHIELD CASE	1 1 1 1 1 1 1 3 1 1 3 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7337 D7338-7349 D7350	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S)  MA166 MA166C LN31GCPHLM-U MA166C MA165 MA166 ERDS2TJ563 ERDS2TJ273 ERDS2TJ103	DIODES  L.E.D  RESISTORS  56K 27K 10K	1 1 1 1 1 12 12 12 1 1 1 1 1 1	
14401		OR EIQ7QG003B OR VLTS0023  VEPS0337A  VEPS0806A  VEQS0257  T18S VJFS0007 VJFS0010 VMAS1008 VMCS0049 VMTS0035 VMXS0371 VMX0573 VSCS0396 VSCS0397 VSCS0398	LUMINANCE C.B.A  CHROMINANCE C.B.A  TV DEMODULATOR UNIT  MISCELLANEOUS  FASTENER  CLAMPER  CLAMPER  CLAMPER  CHANDER  CUSHION  CUSHION  CUSHION  SPACER  SPACER  SHIELD CASE  SHIELD CASE  SHIELD CASE  SHIELD CASE	1 1 1 1 1 1 1 3 1 1 1 1		Q7301 Q7302 Q7303 D7301-7312 D7313-7324 D7325-7336 D7337 D7338-7349 D7350	2SB642(Q,R,S) 2SD637(C,R) 2SD637(Q,R,S)  MA166 MA166C LN31GCPHLM-U MA166C MA165 MA166 ERDS2TJ563 ERDS2TJ273 ERDS2TJ103 ERDS2TJ333	DIODES  L.E.D  RESISTORS  56K 27K 10K	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks	Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R7312,7313	ERDS2TJ102	11.6	2	ļ						
R7301	EWELJ2A00B24	VARIABLE 20K	1			_				
				. *		-		OADAOTTOPS		
				<u> </u>	C1001,1002		TOP CADA	CAPACITORS CERAMIC 0.01	2	
		анть от торо					OR VCKSOOS	CERAMIC 0.01		
77001	HOTOMA CAAANI	CAPACITORS		-			UN TURBUUU	0.00		
7301	VCYST16103NY	CERAMIC 16V 0.01 +-30%	1		ł }		-			
7302	ECQM1H333KV	POLYESTER 50V 0.033	1	<del> </del>	-	H				
7303	VCYST25332NX	CERAMIC 25V 0.0033 +-30%	1		l	-		FILTERS		
27304	ECEB1CK100	ELECTROLYTIC 16V 10	1		11001	A	ELF18D314	FILIERS	ı	
07305	ECQM1H103KV	POLYESTER 50V 0.01 CERAMIC 25V 0.0033 +-30%	1	<u> </u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		OR VLQS0002			
7306	VCYST25332NX	CERAMIC 25V 0.0033 +-30%			1					
					<b> </b>	-				
		SWITCHES				-		FUSE		
******	Waaaaaa	SELECT	1	<u> </u>	Pinni	A	XBA1C16NU100	1.60.1	1	
W7301	VSSS0025	PUSH	12						•	
W7302-7313	EVQ-QJ104K	PUSH	12							
									-	
				<del> </del>		H		MISCELLANEOUS		
-		MISCELLANEOUS				-	TJC6320	FUSE HOLDER	1	
	T18S	FASTENER	1	(A),(C)		-	VJHS0019	IF PACK LEAD PIN	1	
		LED HOLDER	1			$\vdash$	VMZS0126	LINE FILTER C.B.A BARRIER	1	
	VMDS0224		1			$\vdash$		Taran Orbin Brantish	Ė	
	VMDS0137	LED SPACER	1	(B)		-		,		
						-				
	-							LUMINANCE C.B.A		
		CAPSTAN MOTOR DRIVE C.B.A				-	1			
		CAPSTAN MOTOR DRIVE C.B.A				-				
	-							INTEGRATED CIRCUITS		
		THITTECHATED CIDCUITES			IC3101	-	AN3210K	Z. Z	1	
102603	AN 3821 K	INTEGRATED CIRCUITS	1	<del>                                     </del>	IC3101		AN 3320 K		-1	
IC2601	OR AN3822K				103102		AN 3320 K			
	UK AN3822K									
		-			[ <del>                                    </del>		-			
	+							DIODES		
		RESISTORS			D3101,3102	-	MA165		2	
12601 Z	<b>∱</b> ERX12ANJR68	METAL OXIDE 1/2W 0.68	1		25101,5102		OR 188119			
R2602	ERDS2TJ102	110	1		D3104		EQA02-06	ZENER	1	
R2603	ERDS2TJ123	12K	1		25104		OR EQA02-07	ZENER		
R2604		128	1		l ———		OR RD6.2EB	ZENER		
		1202	1	<u> </u>			OR REGIZED			
	ERDS2TJ124	120K	,		1		OR RDS SER			
R2605	ERDS2TJ180	18	1				OR RD6.8EB	ZENER		
			3				OR RD6.8EB	ZENEK		
R2605	ERDS2TJ180	18	_				OR RD6.8EB	ZENDR		
2605	ERDS2TJ180	18	_				OR RD6.8EB			
2605	ERDS2TJ180	18 220K	_		R3101-3103			RESISTORS	3	
R2605 R2606-2608	ERDS 2TJ180 ERDS 2TJ224	18 220K	3		R3101-3103		EVNE4AAO0B54	RESISTORS VARIABLE 50K	3	
22605	ERDS2TJ180 ERDS2TJ224 ECEA1CSS101	220K  CAPACITORS  ELECTROLYTIC 16V 100	3		R3104		EVNE4AA00B54 EVNE4AA00B14	RESISTORS VARIABLE 50K VARIABLE 10K	1	
22605	ERDS 2TJ180 ERDS 2TJ224  ECEA1 CSS101 ECQM1H473KV	18   220K	3		R3104 R3105		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103	RESISTORS VARIABLE 50K VARIABLE 10K 10K	1	
22605 22606-2608 22601 22602	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KV	18   220K	1 1		R3104 R3105 R3106		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122	RESISTORS VARIABLE 50K VARIABLE 10K 10K 1.2K	1 1 1	
22605 22606-2608 22606-2608 22601 22602 22603	ECEA1CSS101 ECCM1H473KV OR ECCM1H473KZ ECEA1HK010	18   220K	1 1		R3104 R3105 R3106 R3107		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563	RESISTORS  VARIABLE 50K  VARIABLE 10K  10K  1.2K  56K	1 1 1	
22605 22606-2608 22601 22602 22603 22604-2606	ERDS 2 TJ 180 ERDS 2 TJ 2 24  ECEA1 CS 101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECEA1 EKN 2 R2	18   220K	1 1 1 3		R3104 R3105 R3106 R3107 R3109,3110		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ332	RESISTORS  VARIABLE 50K  VARIABLE 10K 10K 1.2K 56K 3.3K	1 1 1 1 2	
22605 22606-2608 22601 22602 22603 22604-2606	ECEA1CSS101 ECCM1H473KV OR ECCM1H473KZ ECEA1HK010	18   220K	1 1		R3104 R3105 R3106 R3107 R3109,3110		EVNE4AAOOB54 EVNE4AAOOB14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ332 ERDS2TJ332	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K	1 1 1 1 2	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS 2 TJ 180 ERDS 2 TJ 2 24  ECEA1 CS 101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECEA1 EKN 2 R2	18   220K	1 1 1 3		R3104 R3105 R3106 R3107 R3109,3110 R3111		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ332 ERDS2TJ822 ERDS2TJ822	RESISTORS  VARIABLE 50K  VARIABLE 10K 1.2K 56K 3.3K 8.2K 820	1 1 1 2 1	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS 2 TJ 180 ERDS 2 TJ 2 24  ECEA1 CS 101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECEA1 EKN 2 R2	18   220K	1 1 1 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ1563 ERDS2TJ332 ERDS2TJ382 ERDS2TJ821 ERDS2TJ821	RESISTORS  VARIABLE 50K  VARIABLE 10K 1.2K 56K 3.3% 8.2K 820 680	1 1 1 1 2 1 1	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS 2 TJ 180 ERDS 2 TJ 2 24  ECEA1 CS 101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECEA1 EKN 2 R2	18   220K	1 1 1 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ102 ERDS2TJ563 ERDS2TJ332 ERDS2TJ3822 ERDS2TJ821 ERDS2TJ821 ERDS2TJ821	RESISTORS  VARIABLE 50K  VARIABLE 10K 10K 1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K	1 1 1 2 1 1 1	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS 2 TJ 180 ERDS 2 TJ 2 24  ECEA1 CS 101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECEA1 EKN 2 R2	18   220K	1 1 1 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115	_	EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ332 ERDS2TJ822 ERDS2TJ822 ERDS2TJ821 ERDS2TJ681 EVNE4AA00B54 ERDS2TJ102	RESISTORS  VARIABLE 50K  VARIABLE 10K  10K  1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K	1 1 1 2 1 1 1 1	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115 R3116		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ332 ERDS2TJ822 ERDS2TJ821 ERDS2TJ821 ERDS2TJ821 ERDS2TJ661 EVNE4AA00B54 ERDS2TJ102 ERDS2TJ772	RESISTORS  VARIABLE 50K  VARIABLE 10K 10K 1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K	1 1 1 1 2 1 1 1 1 1	
2605 2606-2608 2601 2601 2602 2603 2604-2606	ERDS 2 TJ 180 ERDS 2 TJ 2 24  ECEA1 CS 101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECEA1 EKN 2 R2	18   220K	1 1 1 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115 R3116 R3117		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ332 ERDS2TJ332 ERDS2TJ821 ERDS2TJ821 ERDS2TJ681 EVNE4AA00B54 ERDS2TJ102 ERDS2TJ102	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K 820 680 VARIABLE 50K 11K 2.7K	1 1 1 1 2 1 1 1 1 1 1	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115 R3116 R3117 R3118,3119	1	EVNE4AAOOB54 EVNE4AAOOB14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ332 ERDS2TJ822 ERDS2TJ821 ERDS2TJ821 ERDS2TJ681 EVNE4AAOOB54 ERDS2TJ102 ERDS2TJ103 ERDS2TJ103	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K 820 680 VARIABLE 50K 1K 2.7K 10K 3390	1 1 1 2 1 1 1 1 1 1 1 2	
2605 2606-2608 2601 2602 2603 2604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115 R3116 R3117 R3118,3119 R3120,3121		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ332 ERDS2TJ822 ERDS2TJ821 ERDS2TJ681 EVNE4AA00B54 ERDS2TJ102 ERDS2TJ102 ERDS2TJ103 ERDS2TJ391 ERDS2TJ122	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K 1K 2.7K 10K 390 1.2K	1 1 1 2 1 1 1 1 1 1 1 2 2 1 1 1 1 1 2	
2605 2606-2608 2601 2601 2602 2603 2604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115 R3116 R3117 R3118,3119 R3120,3121 R3122		EVNE4AAOOB54 EVNE4AAOOB14 EVNE4AAOOB14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ322 ERDS2TJ821 ERDS2TJ821 ERDS2TJ681 EVNE4AAOOB54 ERDS2TJ102 ERDS2TJ102 ERDS2TJ103 ERDS2TJ391 ERDS2TJ122 ERDS2TJ122	RESISTORS  VARIABLE 50K  1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K 11K 2.7K 10K 390 1.2K	1 1 1 2 1 1 1 1 1 1 1 2 2 1 1 1 1 2 1 2	
2605 2606-2608 2601 2601 2602 2603 2604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R3112 R3113 R3114 R3115 R3116 R3117 R3118,3119 R3120,3121 R3122 R3123	1	EVNE4AAOOB54 EVNE4AAOOB14 EVNE4AAOOB14 ERDS2TJ103 ERDS2TJ563 ERDS2TJ332 ERDS2TJ821 ERDS2TJ821 ERDS2TJ681 EVNE4AAOOB54 ERDS2TJ102 ERDS2TJ103 ERDS2TJ272 ERDS2TJ103 ERDS2TJ103 ERDS2TJ122 ERDS2TJ122 ERDS2TJ162 EVNE4AAOOB24	RESISTORS  VARIABLE 50K  1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K 11K 2.7K 10K 390 1.2K 5.6K VARIABLE 20K	1 1 1 2 1 1 1 1 1 1 2 2 1 1 1 1 2 1 1 1 2 1	
22605 22606-2608 22601 22602 22603 22604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R31112 R3113 R3114 R3115 R3116 R3117 R3118,3119 R3120,3121 R3122 R3123 R3123	1	EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ322 ERDS2TJ821 ERDS2TJ681 EVNE4AA00B54 ERDS2TJ102 ERDS2TJ102 ERDS2TJ103 ERDS2TJ391 ERDS2TJ391 ERDS2TJ391 ERDS2TJ562 EVNE4AA00B24 ERDS2TJ182	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K 1K 2.7K 10K 390 1.2K 5.6K VARIABLE 20K VARIABLE 20K	1 1 1 2 1 1 1 1 1 1 2 2 1 1 1 1 1 2 1 1 1 1 1 2 1	
22605 22606-2608 22601 22602 22603 22604-2606	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R31112 R3113 R3114 R3115 R3116 R3117 R3118,3119 R3120,3121 R3122 R3123 R3125 R3126	1	EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ102 ERDS2TJ563 ERDS2TJ332 ERDS2TJ821 ERDS2TJ821 ERDS2TJ681 EVNE4AA00B54 ERDS2TJ102 ERDS2TJ102 ERDS2TJ103 ERDS2TJ103 ERDS2TJ104 ERDS2TJ105 ERDS2TJ105 ERDS2TJ104 ERDS2TJ105 ERDS2TJ155	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K 820 680 VARIABLE 50K 1K 2.7K 10K 390 1.2K 5.6K VARIABLE 20K VARIABLE 20K 1.8K 1.8K	1 1 1 1 2 1 1 1 1 1 1 2 2 1 1 1 1 1 1 1	
R2605	ERDS2TJ180 ERDS2TJ224  ECEA1CSS101 ECQM1H473KV OR ECQM1H473KZ ECEA1HK010 ECGA1EKN2R2 ECKF1H472ZF	18   220K	1 1 3 3 3		R3104 R3105 R3106 R3107 R3109,3110 R3111 R31112 R3113 R3114 R3115 R3116 R3117 R3118,3119 R3120,3121 R3122 R3123 R3123		EVNE4AA00B54 EVNE4AA00B14 ERDS2TJ103 ERDS2TJ122 ERDS2TJ563 ERDS2TJ322 ERDS2TJ821 ERDS2TJ681 EVNE4AA00B54 ERDS2TJ102 ERDS2TJ102 ERDS2TJ103 ERDS2TJ391 ERDS2TJ391 ERDS2TJ391 ERDS2TJ562 EVNE4AA00B24 ERDS2TJ182	RESISTORS  VARIABLE 50K  VARIABLE 10K  1.2K 56K 3.3K 8.2K 820 680  VARIABLE 50K 1K 2.7K 10K 390 1.2K 5.6K VARIABLE 20K VARIABLE 20K	1 1 1 2 1 1 1 1 1 1 2 2 1 1 1 1 1 2 1 1 1 1 1 2 1	

Ref. No.	Part No.	Part Name & Description	Pcs /	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R3130	ERDS 2TJ222	2.2K	Set 1					ser	
R3131	ERDS2TJ121	120	1						
R3132	ERDS2TJ103	10K	1						
R3133,3134	ERDS2TJ152	1.5K	2				FILTER		
R3135	ERDS2TJ222	2.2K	1		FL3101	ELB4M006		1	
R3136	ERDS2TJ271	270	1			OR VLFS0011			
R3140,3141	ERDS2TJ824	820 K	2						
R3142	ERDS2TJ181	180	1						
R3143	ERDS2TJ473	47K	1						
							COILS		
					L3101-3103	VLQS05R101K	100	3_	*
					L3104	VLQS05R270K	27	1	
		CAPACITORS			L3105	VLQS05R101K	100	1	
C3101	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	1		L3106,3107	VLQS05R100K	10	2	
C3102	ECCW1H390JC5	CERAMIC 50V 39P +-5%	1						
C3103	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	1						
C3105	VCYSARH101KB	CERAMIC 50V 100P	1						
C3106	ECEA1HSR47	ELECTROLYTIC 50V 0.47	1				MISCELLANEOUS		
C3107	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	1			VJHS0046	PACK LEAD PIN	1	
C3108	ECEAOJS221	ELECTROLYTIC 6.3V 220	1			VMZS0081	SPACER	1	
C3109	VCYSARH331KB	CERAMIC 50V 330P	1			VSCS0494	ANGLE	1	
C3110	VCYSARH391KB	CERAMIC 50V 390 P	1			· ·		ļ	
C3111	VCYSARH561KB	CERAMIC 50V 560P	1					<u> </u>	
C3112	ECEA1HS010	ELECTROLYTIC 50V 1	1						
C3113	ECCW1H680JC5	CERAMIC 50V 68P +-5%	1				CHROMINANCE C.B.A		
C3114	VCYSARH331KB	CERAMIC 50V 330 P	1					ļ	
C3115-3122	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	8					<u> </u>	
C3123,3124	ECCW1H390 JC5	CERAMIC 50V 39P +-5%	2.					ļ	
C3125	ECEA0 JS 221	ELECTROLYTIC 6.3V 220	1				INTEGRATED CIRCUITS		
C3126-3128	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	3		IC8101	AN 6366NK		1	
C3129	ECCW1H390JC5	CERAMIC 50V 39P +-5%	1		IC8102	MN6163A		1	
C3130	ECEA1HS010	ELECTROLYTIC 50V 1	1						
C3131	ECCW1H390JC5	CERAMIC 50V 39P +-5%	1						
C3132	ECEA1ES 3R3	ELECTROLYTIC 25V 3.3	1						
C3133,3134	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	2				TRANSISTORS		
C3135	ECEA1HS010	ELECTROLYTIC 50V 1	1		Q8101-8104	2SC2021M(Q,R,S	}	4	
C3136	VCYSARH681KB	CERAMIC 50V 680P	1			OR			-
C3137	ECCW1H151JC5	CERAMIC 50V 150P +-5%	1			2SD636(Q,R,S)			
C3138	ECCW1H221J5	CERAMIC 50V 220P +-5%	1					-	
	OR	501 000 5W							
	VCKW1H221 JSA	CERAMIC 50V 220P +-5%					DYONEG	-	
C3139	VCYSARC103MY	CERAMIC 16V 0.01 +-20%	1		20101 0100	W1145	DIODES	2 .	
C3140	ECCW1H561J5	CERAMIC 50V 560P +-5%	1		D8101,8102	MA165		2.	
-	OR	CONTRACTOR SOURCES				OR 1SS119			
	VCKR1H561JSA	CERAMIC 50V 560P +-5%						-	
C3141	ECCW1H820JC5	CERAMIC 50V 82P +-5%	1			1			
	OR VCYSARH820J	CERAMIC 50V 82P +-5%			1		RESISTORS	$\vdash$	
C3142	ECEALES 3R3	ELECTROLYTIC 25V 3.3	1		P9001	EDDC 28 14 82		1	
C3143	ECEA1ES4R7 ECEA1CS220	ELECTROLYTIC 25V 4.7 ELECTROLYTIC 16V 22	1		R8001 R8101	ERDS2TJ682 ERDS2TJ102	6.8K	-	
C3144					R8102	ERDS2TJ102 ERDS2TJ121	120	1	
C3145	ECEALES 3R3	ELECTROLYTIC 25V 3.3 ELECTROLYTIC 50V 2.2	1		R8102	ERDS2TJ121 ERDS2TJ152	1.5K		
C3147	ECEA1HS2R2	ELECTROLYTIC 50V 2.2	1		R8103	ERDS2TJ132 ERDS2TJ122	1.2K		
	-				R8105	ERDS2TJ222 ERDS2TJ222	2.2K	1	
					R8106	ERDS2TJ272	2.7K		
		C/R COMPLEX COMPONENTS			R8107,8108	ERDS2TJ682	6.8K	2	
CR3101	EXRP391K332	50V 390P	1		R8109	EVNE4AA00B54	VARIABLE 50K	1	
AV2101	DAME 371 K332	3.3K	-		R8110	ERDS2TJ183	VARIABLE 30k	1	
CR3102	EXRP103M184	50V 0.01 +-20%	1		R8111	ERDS2TJ271	270	1	
01/31/02	BARI 10 JH 104	180K	-		R8112	ERDS2TJ332	3.3K		
CR3103	EXRP391K271	50V 390P	1		R8113	EVNE4AA00B53	VARIABLE 5K	1	
CK3103	BART 391K2/1	270			R8114	ERDS2TJ122	1.2K	1	
CR3104	EXRP121K152	50V 120P	1		R8115	ERDS2TJ822	8.2K	1	
		1.5K	-		R8116	ERDS2TJ183	18K		
		1.5%			R8117	ERDS2TJ471	470	1	
		1						1	
				I	188110	ERDSOTIOGG	770		
					R8119	ERDS2TJ223	22K	-	
		DRIAY LINE			R8120	ERDS2TJ102	1K	1	
DL3101	EFDEN645A12P	DELAY LINE	1		1 1	1		1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R8125	ERDS 2TJ102	1K	_		L8104,8105	VLQS05R101K	100	2	
R8126	ERDS2TJ271	270	+		L8106,8107	VLQS05R181K	180	2	
R8127	ERDS2TJ102	1K	-		L8108	VLQS05R102K	1MH	1	
R8129	ERDS2TJ822	8.2K	1		T 8100	OR VLQS66R102K	1MH 47	1	
R8130	ERDS2TJ183	18K	. 1.		L8109	VLQS05R470K	47		
R8131	ERDS2TJ562 ERDS2TJ561	5.6K	1		-				
R8132 R8133	ERDS2TJ273	27K	1						
R8134	ERDS2TJ153	15K	1				CRYSTALS OSCILLATOR		
R8135	ERDS2TJ561	560	1		X8101	VSXS0003		1	
R8136	ERDS2TJ472	4.7K	. 1			OR VSX0060			
R8137	ERDS2TJ821	820	1						
R8138	ERDS2TJ472	4.7K	1						
							2, 2, 2, 3		
		-					MISCELLANEOUS		
						VJHS0046	PACK LEAD PIN	1	
		CAPACITORS							
C8101,8102	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	2						
C8103	VCYW1E183KX	CERAMIC 25V 0.018	1,	, e e			-		
C8104	VCYSARH680J	CERAMIC 50V 68P +-5%	1				TV DEMODULATOR UNIT		<u> </u>
C8105,8106	VCYSARH121KB	CERAMIC 50V 120P	-					<u></u> .	
C8107	VCYSARC103NY	CERAMIC 16V 0.01 +-30%					`		
C8108	ECEAI HSO 10	ELECTROLYTIC 50V 1	1						
<del></del>	OR ECEA1HU010	ELECTROLYTIC 50V 1	<del> </del>		T0701	ANETOSY	INTEGRATED CIRCUITS	1	
C8109	ECEAOJS470	ELECTROLYTIC 6.3V 47	_		IC701	AN5135K		1	
	OR ECEAOJU470	ELECTROLYTIC 6.3V 47				-		-	
C8110	VCYSARH5R6KC	CERAMIC 50V 5.6P							
C8111	MCV03R200ER	TRIMMER 20P				_	TRANSISTORS		
C8112	VCYSARH102KB	CERAMIC 50V 0.001 ELECTROLYTIC 6.3V 220	1.		Q701	2SC2188	TRANSISIONS	1	
C8113	OR ECEAOJU221	ELECTROLYTIC 6.3V 220 ELECTROLYTIC 6.3V 220	+		Q701 Q702	2SD637(Q,R)		1	
C8114	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	_		Q702	200037 (Q,u)			
C8115	VCYSARH102KB	CERAMIC 16V 0.01 4-30%	1						
C8116	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	+						
C8117	VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1				DIODE		,
C8118,8119	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	+		D701	MA27T-B		1	
C8120	VCYSARC222NX	CERAMIC 50V 0.0022 +-30%							
C8121	VCYSARC103NY	CERAMIC 16V 0.01 +-30%							
C8122	VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1						
C8123-8130	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	8				RESISTORS		
C8131	VCYSARH680J	CERAMIC 50V 68P +-5%	1		R702,703	ERDS2TJ562	5.6K	2	
C8132	VCYSARH271KB	CERAMIC 50V 270P	1		R704	ERDS2TJ271	270	1	
C8133	VCYSARH680J	CERAMIC 50V 68P +-5%	1		R705	ERDS2TJ221	220	1	<u> </u>
C8134	VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1		R706,707	ERDS2TJ821	820	2	
C8135	VCYSARH680J	CERAMIC 50V 68P +-5%	1		R708	ERDS2TJ561	560	1	
C8136	VCYSARH220J	CERAMIC 50V 22P +-5%	1		R709	ERDS2TJ470	. 47	1	
C8137	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1		R710	ERDS2TJ122	1.2K	1	
	OR ECEA1EU3R3		1		R711	ERDS 2TJ474	470K		
C8138	ECEA1ES4R7	ELECTROLYTIC 25V 4.7			R712	ERDS2TJ183	18K		
	OR ECEA1EU4R7	ELECTROLYTIC 25V 4.7	1		R713	ERDS2TJ221	220	1	3
C8139	VCYW1C104MX	CERAMIC 16V 0.1 +-20%		1.	R714	ERDS2TJ821 AVNE4AA0 B223	VARIABLE 22K	1	
C8140	VCYSARH150JC	CERAMIC 50V +-5%	_		R715	OR OR	VARIABLE 22K	1	
C8141	VCYSARH151KB	CERAMIC 50V 150P	1	1.5		EVNE 4AA00 B24	VARIABLE 20K		
		-	-		R716	ERDS 2TJ471	VARIABLE 20K	1	-
-	-	<del> </del>	<del> </del>		R718	AVNE4AAOB103	VARIABLE 10K		
	+	DELAY LINE	+-		A, 10	OR	104	_	
DL8101	EFDVN645B15G	DEMAIL DINE	1			EVNE4AA00 B14	VARIABLE 10K		
220101	2124110420120	·	+		R719	ERDS 2TJ 272	2.7K	- 1	
			<del> </del>		R720	ERDS2TJ680	68		
			<b>†</b>		R721	ERDS1TJ680	1/2W 68	1	
		FILTER	<b></b>	- in-	R722	ERDS1TJ101	1/2W 100	1	
FL8101	VLFS0008		1		R723	ERDS2TJ101	100	1	
					R724	ERDS2TJ562	5.6K	1	
			T T		R726	ERDS2TJ222	2.2K		
				1.0	R727	ERDS2TJ102	1K		
		COILS			R729	ERDS2TJ681	680	1	
L8101	VLQS05R471K	470	1		R731	ERDS2TJ104	100K	1	
L8102	VLQS05R221K	220			R732	ERDS2TJ222	2.2K	1	
							1K		

Ref. No.	L	Part No.	Part Name & Description	Pcs / Set	Remarks
R735,736		ERDS2TJ152	1.5K	2	
			CAPACITORS		
C701-704		VCYSACR103MY	CERAMIC 16V 0.01 +-20%	4	
C705		ECEA1 CK330	ELECTROLYTIC 16V 33	1	
C706,707		VCYSACR103MY	CERAMIC 16V 0.01 +-20%	2	
C708		ECQV05474JB	POLYESTER 50V 0.47 +-5%	1	
		OR ECQV1H474J2	POLYESTER 50V 0.47 +-5%		
C709		VCYSACR103MY	CERAMIC 16V 0.01 +-20%	1	
C710		ECEA1HK010	ELECTROLYTIC 50V 1	1	
C713		VCYSACR103MY	CERAMIC 16V 0.01 +-20%	1	
C715		ECCW1H180JC5	CERAMIC 50V 18P +-5%	1	
C716		ECKW1H101KB5	CERAMIC 50V 100P	1	
C717		ECCW1H820JR5	CERAMIC 50V 82P +-5%	1	
C718		ECCW1H120JC5	CERAMIC 50V 12P +-5%	1	
C719		ECCW1H220JC5	CERAMIC 50V 22P +-5%	1	
C720,721		ECQV05473JZ	POLYESTER 50V 0.047 +-5%	2	
		OR ECQV1H473JZ	POLYESTER 50V 0.047 +-5%		
C722	Ĺ	ECEA1HKR47	ELECTROLYTIC 50V 0.47	1	
C723	L	ECEA1CK470	ELECTROLYTIC 16V 47	1	
C726		ECCW1H040CC5	CERAMIC 50V 4P +-0.25P	1	
C727		ECQM1H223KV	POLYESTER 50V 0.022	1	
C728		ECCW1H560JC5	CERAMIC 50V 56P +-5%	1	
C729		ECEAlEK4R7	ELECTROLYTIC 25V 4.7	1	
C731	_	ECCW1H270JC5	CERAMIC 50V 27P +-5%	1	
C733		ECEA1HK010	ELECTROLYTIC 50V 1	1	
C734		VCYSACR103MY	CERAMIC 16V 0.01 +-20%	1	
C736		ECCW1H560JC5	CERAMIC 50V 56P +-5%	1	
· · · · · · · · · · · · · · · · · · ·					
			FILTERS		
FL701		EFCS4R5MS4	CERAMIC	1	
FL702		EFCS4R5MW3	CERAMIC	1	
FL/02		OR TFCS4R5MW3	CERAMIC		
ET 703	H			1	
FL703		VLFS0006		1	
FL703 FL704				1	
		VLFS0006			
		VLFS0006			-
		VLFS0006	COTIS		
FL704		VLFS0006 VSXS0004	COILS	1	
		VLFS0006 VSXS0004 ELQR82KB	0.82		
FL704		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C	0.82 0.82	1	
L702 L703		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQ866R4R7K	0.82 0.82 4.7	1	
L702 L703		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB	0.82 0.82 4.7 0.47	1	
L702 L703 L705		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C	0.82 0.82 4.7 0.47 0.47	1 1 1	
L702 L703 L705		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K	0.82 0.82 4.7 0.47 0.47	1 1 1	
L702 L703 L705 L706 L707		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K	0.82 0.82 4.7 0.47 0.47 12	1 1 1 1 1	
L702 L703 L705 L706 L707 L708		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQS66R680K	0.82 0.82 4.7 0.47 0.47 12 68	1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47N205C VLQS66R120K VLQS66R120K VLQS66R680K VLQS66R47K VLQS66R47K	0.82 0.82 4.7 0.47 0.47 12 68 4.7	1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQ866R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQ866R487K VLQ866R470K VLQ866R470K VLQ866R40K	0.82 0.82 4.7 0.47 0.47 12 68 4.7	1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47N205C VLQS66R120K VLQS66R120K VLQS66R680K VLQS66R47K VLQS66R47K	0.82 0.82 4.7 0.47 0.47 12 68 4.7	1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQ866R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQ866R487K VLQ866R470K VLQ866R470K VLQ866R40K	0.82 0.82 4.7 0.47 0.47 12 68 4.7	1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQ866R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQ866R487K VLQ866R470K VLQ866R470K VLQ866R40K	0.82 0.82 4.7 0.47 0.47 12 68 4.7	1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQ866R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQ866R487K VLQ866R470K VLQ866R470K VLQ866R40K	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQS66R477K VLQS66R4770K VLQS66R680K VLQS66R680K VLQS66R220K	0.82 0.82 4.7 0.47 0.47 12 68 4.7	1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R680K VLQS66R470K VLQS66R680K VLQS66R680K VLQS66R620K ELV7EF002B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R680K VLQS66R477K VLQS66R477K VLQS66R680K VLQS66R680K VLQS66R680K VLQS66R6220K	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R680K VLQS66R470K VLQS66R680K VLQS66R680K VLQS66R620K ELV7EF002B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R680K VLQS66R470K VLQS66R680K VLQS66R680K VLQS66R620K ELV7EF002B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702  L703  L705  L706  L707  L708  L709  L710  L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R680K VLQS66R470K VLQS66R680K VLQS66R680K VLQS66R620K ELV7EF002B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R47K VLQS66R47K VLQS66R47CK VLQS66R47DK VLQS66R47DK VLQS66R120K VLQS66R120K VLQS66R120K VLQS66R120K VLQS66R1	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQ866R4R7K ELQR47KB OR TLQR47N205C VLQ866R120K VLQ866R120K VLQ866R47K VLQ866R47K VLQ866R47CK VLQ866R47CK VLQ866R40C VLQ866R40C VLQ866R120K VLQ866R120K	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68 22  TRANSFORMERS	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R620K VLQS66R680K VLQS66R470K VLQS66R470K VLQS66R470K VLQS66R20K  ELV7EF001B  EV7EF001B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68 22  TRANSFORMERS	1 1 1 1 1 1 1 1 1 1 1	
L702  L703  L705  L706  L707  L708  L709  L710  L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R60K VLQS66R60K VLQS66R470K VLQS66R470K VLQS66R470K VLQS66R470B ELV7EF001B  EV7EF001B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68 22  TRANSFORMERS  MISCELLANEOUS PACK PIN	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R60K VLQS66R60K VLQS66R470K VLQS66R470K VLQS66R470K VLQS66R470B ELV7EF001B  EV7EF001B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68 22 TRANSFORMERS MISCELLANEOUS PACK PIN SHIELD CASE	1 1 1 1 1 1 1 1 1 1 1	
L702 L703 L705 L706 L707 L708 L709 L710 L712		VLFS0006 VSXS0004  ELQR82KB OR TLQR82N205C VLQS66R4R7K ELQR47KB OR TLQR47N205C VLQS66R120K VLQS66R120K VLQS66R60K VLQS66R60K VLQS66R470K VLQS66R470K VLQS66R470K VLQS66R470B ELV7EF001B  EV7EF001B	0.82 0.82 4.7 0.47 0.47 12 68 4.7 47 68 22 TRANSFORMERS MISCELLANEOUS PACK PIN SHIELD CASE	1 1 1 1 1 1 1 1 1 1 1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	TJE98101	CHECK TERMINAL	50	
	TNV56751F2R	TUNER	1	(A)
	TNV76775F2R		1	(B),(C)
	VEJS0019	VHF BLOCK	1	(2),(0)
	VEKS1442	ANT CABLE	1	
	VEKS1443	RF CABLE	1	
	VEPS00269A	REEL SENSOR UNIT	1	
	VEQS0252	RF CONVERTER	1	
Ì	VEQS0253	RF CONVERTER	1	
	VEQS0254	RF CONVERTER	1	
	VEQS0255	RF CONVERTER	1	
	↑ VJASO033 VJBS00202	AC CORD TAKE UP PHOTO TR P.C.B		
	VJBS00239	SUPPLY PHOTO TR P.C.B	1	
	VJBS00296	CONNECTION P.C.B	1	
-	VJES0007	CHECK TERMINAL	45	
	VJJS0056	ANT TERMINAL PLATE	1	
	V JR3	CLAMPER	1	
	VLTS0002	BALLOON CORE	1	
	VMAS0783	AC CORD ANGLE	1	
		REEL SENSOR SPACER		
	VMXS0333		1	
	VSCS0283	ANT COVER	1	
	VXKS0342	SENSOR LED UNIT	1	
	XNG3	M3 NUT	1	
	XYN3+F12FS	SCREW WITH WASHER 3X1	2 1	
	XYN3+F6S	SCREW WITH WASHER 3X		
rc1551		INTEGRATED CIRCUIT	1	iii iii
IC1551	0N2160			
(1551,1552	PN150NV	PHOTO TRANSISTOR	2	
R1551	ERDS2TJ100	RESISTOR CARBON 1	1	
W1551	VESSO016	MODE SELECT SWITCH	1	
SW1552	VSHS0008	CASSETTE DOWN LEAF SWITCH	1	
SW1553	VSMS0007	SAFETY SWITCH	1	
			+	
			-	
		WIRED TRANSMITTER C.B.A		
			$\top$	
			+	
		RESISTORS	+	
R6601	ERD25TJ362	3.6	K 1	
R6602	ERD25TJ752	7.5	K 1	
R6603	ERD25TJ153	15	K 1	
				1
			+	
			-	
		SWITCHES	-	
W6601-6603	EVQ-QJ104-K		3	ļ
SW6605	EVQ-QJ104-K		1	
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